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THE
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BEING A

WEEKLY JOURNAL

OF

Medicine and the Collateral Sciences.

FRIDAY, SEPTEMBER 25, 1840.

LECTURES
ON THE
PRINCIPLES AND PRACTICE OF PHYSIC,

Delivered at King's College, London,

BY DR. WATSON.

INTRODUCTORY LECTURE.

IN approaching any new subject of enquiry, gentlemen, there are certain points concerning which the enquirer should always be careful to satisfy himself. He should comprehend, distinctly, what it is that he proposes to learn; its subject-matter, and its objects; he should consider whether he is about to adopt the most easy, direct, and effectual means for obtaining his purpose; and whether he is qualified, by the possession of the requisite preliminary information, for pursuing his enquiries with intelligence and success. To these points, and to some others, as they are connected with the duties with which I have been entrusted in this College, I wish briefly to direct your attention on the present occasion. It will be my endeavour to furnish you, at the outset, with clear notions of the nature and the ends of that branch of study upon which you are now about to enter; to explain why it is taught, and in what degree it may be taught, by oral discourses: to point out to you what may reasonably be expected from me, and what, to render my attempts prosperous, will be required on your parts. Something also it is expedient that you should know respecting the general order and arrangement of the course; and a short explanatory comment upon some of the terms that we shall constantly be employing, will clear the way for the succeeding lectures, which forming more strictly than the present a part of the series, will also be more strictly didactic in their character.

The subject of our study is that wonderful thing, the animal body—and more particularly the human body; its construction and qualities; its actions and its sufferings; its derangements; its decay.

In this most interesting, and surely awful study, you have already advanced a certain way. You know the outward form and fashion of the body: you have investigated its internal composition and structure: you have learned what is known of its various endowments; the uses and the actions of its several parts.

This amount of knowledge is indispensable to your further progress. It forms a portion only of what you desire to learn—or rather it is a preparation for the ends you are seeking. To the student of natural theology, indeed, it would, in itself, be sufficient and complete; and who can enjoy the privilege which each of you has enjoyed without becoming, even involuntarily, a student of natural theology? Who can look into the mechanism of this intricate but perfect work, and contemplate the evident marks of exquisite contrivance, of which it is full—the endless examples of means adjusted to ends, of prospective expedients, of compensation for inevitable disadvantages, of direct provisions for animal happiness and enjoyment—without the deepest conviction of the power, and wisdom, and benevolence of its Maker? But beyond, though not above, these higher objects of a diligent examination of man's bodily fabric, we have another and still a noble end; and it is my business to take you one step nearer to that end. Hitherto you have heard of structure and of function. Henceforward our theme must be of health and of disease. Of health, that we may understand disease; of disease, that we may, under Providence, restore health. Our objects are to preserve the one;—to prevent, remove, or assuage the other.

What then do these contrasted terms denote?

Health we regard as a standard condition of the living body. But it is not easy to express that condition in a small number of words; nor is it necessary. My object is to be intelligible rather than scholastic: and I should probably puzzle myself as well as you if I were to attempt to lay down a strict and scientific definition of the term health. It is sufficient for our purpose to say that it implies freedom from pain and sickness; freedom also from all those changes in the structure of the body that endanger life, or impede the easy and effective exercise of the vital functions.

It is plain that health does not signify any fixed immutable condition of the body. The standard of health varies, in different persons, according to age, and sex, and original constitution; and in the same person, even from week to week, or from day to day, it may shift and vary within certain limits.

Health, again, does not necessarily imply the perfect integrity of all the bodily organs, and is not incompatible with great and permanent alterations, and even loss of parts that are not vital: as of an arm, a leg, or an eye.

If we can form and fix in our minds a clear conception of the state of health, we shall have no difficulty in comprehending what is meant by disease, which consists in some deviation from that state; some mode of action, or of being, or of feeling, different from those which are proper to health.

I use the word *disease* generically. Various terms in our language bear nearly the same meaning; and endeavours have been made to appropriate some of these more distinctively. Thus the word *disorder* has sometimes been applied to simple derangements of function, where no alteration of structure is seen, or can reasonably be inferred to exist; while the term *disease* has been restricted to maladies that run a definite course, or to such as are attended with appreciable change of texture. I see no great utility, but, on the contrary, some risk of confusion, in tying ourselves rigidly down to such distinctions. Indeed, we cannot always make them. During life it is often no easy thing to determine whether the parts, of which the functions are disturbed, preserve their integrity of structure or not: and even when the peccant organ is placed before our eyes after death, and the most careful scrutiny fails to discover in it any faultiness of texture, there may still be ground for suspecting that some material change, too subtle for detection by our senses, may have been wrought in its finer and more delicate organization. I shall take care to point out to you, as we go along, the cases in which we can trace organic change, and the cases in which we cannot; but, for the sake of simplicity, I shall call all deviations from the healthy standard, whether of function or of structure, by the generic term disease; and to avoid the perpetual and tiresome recurrence of the same word, I shall not scruple to employ the several terms disorder, complaint, malady, distemper, illness, as synonymous with the term disease.

The number of these deviations from the standard of health, (in other words, the whole number of *diseases*), if we include all their differences in kind and in degree, is truly infinite; and the first thing requisite towards investigating the laws that govern their phenomena, is, that we should break them into groups, and dispose them according to some principle of order.

Now there are various methods in which this first broad classification of diseases might be framed.

The most cursory examination of the animal economy suffices to shew that it is made up, not merely of separate parts, but of several distinct systems. There is one set of organs for the mechanical circulation of the blood; there is an apparatus expressly designed for exposing the blood repeatedly to the air; a system for regulating the movements and the feelings of the body; another system for receiving, preparing, and appropriating its nourishment; another for the elaboration of matters that are useful or essential to its functions; another system for carrying off its impurities, and for removing its superfluous or effete materials; another for the continuance of the species.

Now each of these systems is liable to changes of structure and interruptions of function, peculiar to itself; and these peculiarities must be taken into account, whatever may be the order adopted in treating of diseases in detail. But I shall not divide the subject, as some have done, into diseases of the circulating system—diseases of the respiratory system—diseases of the nervous system—and so on; for this, among other reasons, that there are many forms of disorder that affect all these systems in common, or simultaneously, and comparatively few that are strictly confined to any one of them.

Neither, in the lectures which I am about to commence, shall I classify diseases according to the several *tissues* of which the animal frame is composed. In speaking of diseases in general, it will, indeed, be both proper and necessary to explain in what manner the same morbid process may be modified by the nature of the special tissue affected. But the entire body is more or less penetrated and pervaded by several of these tissues together, so that no useful or lucid arrangement of diseases could be founded on this basis.

Nor shall I attempt to construct a nosological system by grouping together certain sets of symptoms, and calling each set, in its collective form, a disease.

To say the truth, I shall consider convenience and usefulness, in framing my plan, rather than an appearance of scientific precision; and if I make one principle of arrangement more prominent than another, it will be that which relates to the anatomy of regions—the place and situation of organs. At the same time I shall not omit to borrow in part from some of those other plans to which I have just been referring.

Before, however, we treat of the nature of particular diseases, it will be requisite to give some general account of the different ways in which the various parts of the body are liable to be altered in structure, or disordered in function; and before we speak of the *signs* of particular diseases, it will be proper to take a general view of symptoms, and of their ascertained relations with the several forms of altered structure; for doubtless you are aware that, although diseases are not *constituted* by symptoms, they are, in the living body, *disclosed* by symptoms. Sometimes the symptoms are outward signals which alone reach our senses, and through which internal changes declare themselves, and we then have to decipher and interpret those signals. Sometimes we *see* the morbid changes themselves, on the surface of the body, or in parts within our view. Some internal changes we can appreciate as surely by the touch, or by the sense of hearing; and of some we infer the existence from alterations in the chemical or in the sensible qualities of the natural excretions.

After death diseases are often to be traced, by visible changes of structure in the internal parts of the body. These changes are extremely interesting, as illustrative of morbid processes: they throw light upon what is past; they afford some guidance for the time to come. But, for obvious reasons, those signs which reveal diseases during life are, practically, of chief moment. In truth, the great object of our art is to prevent the disclosure of the others. The instruction afforded by the dead body comes too late to be of use in that particular case.

I have already intimated that the morbid conditions from which the symptoms flow, are not always to be detected, either before or after dissolution. Neither, when they are detected, is their connexion with the symptoms always evident.

Besides inquiring into the modes in which the various organs and textures of the body may be spoiled, and into the signals or symptoms by which the presence of disease may be ascertained, it will be expedient to premise something, in a general manner, of the *causes* of disease, both with a view to its cure, and to what is much better, its prevention. We shall also find it very useful to institute a short enquiry into the different ways in which death may take place—the different processes of dying.

There is one morbid condition or process, to which all parts of the body are liable, and which contributes so largely and so frequently to alterations both of texture and function, that it claims our especial attention when discussing the more general facts and doctrines of pathology; I allude to that change, or series of changes, which we comprehend under the term *inflammation*.

It will be necessary, therefore, in the preliminary part of the course, to give a general account of inflammation; and this account must chiefly be drawn from those of its phenomena which are most familiar to us—which we can see and handle; those which we witness when disorder is seated in or near the surface, in the skin, in some of the mucous membranes, or in the subjacent cellular tissue. Then we shall pursue the examination of its peculiar phenomena as they are presented in the other tissues of the body—the mucous, serous, fibrous, parenchymatous, muscular, and nervous tissues; and here the *general* principles of treatment applicable to inflammation may be laid down, with the modifications required according to the tissues interested.

In this part of the course may also be conveniently discussed the modifications of inflammation, and of morbid conditions generally, by the influence of certain *diatheses*, or peculiar dispositions of the body. Some constitutional morbific tendencies we shall find to be innate or hereditary;—such are the scrofulous and the cancerous dispositions: others, again, are plainly acquired, as that in which the whole system is tainted for a longer or shorter period by the venereal poison.

Hæmorrhages, also, and serous accumulations, or *dropsies*, as they are liable to occur in all parts of the body, require to be treated of generally, before they pass under our notice in the list of particular maladies. There are certain facts and reasonings common to all inflammations, to all hæmorrhages, to all dropsies. By combining these "generalities" into one comprehensive statement, we help the memory, avoid needless repetitions, and find room for the exposition of principles.

Diseases themselves, in the mass, are sometimes distinguished according as they are *local*, or *general*.

Taking these epithets in their popular sense, we should say that local diseases are those which occupy a definite portion only of the body; general diseases those which pervade the whole body.

But let us endeavour to obtain clear notions upon these points.

Certainly there are many diseases which occupying a definite portion only of the body, leave all the remaining parts, and the system at large, healthy both in texture and in function. Such diseases we have no hesitation in calling local.

Again, there are many other diseases which occupying a definite portion only of the body, yet occasion a manifest and serious disturbance in the functions of various other parts, and (it may perhaps be said) of the whole system. Inflammation of a small portion of the frame may give rise to much secondary or symptomatic fever; but here also we properly speak of the disease as being local; the secondary general disorder results from the local and primary, follows it in point of time, and subsides upon its cessation.

But there are still other forms of disease which shew themselves, not like inflammation now in this and now in that part, but in many or most parts of the body *at the same time.* I will take the complaint called purpura, characterized by the universal appearance of purple spots, as an example of what I mean. It is in truth a hæmorrhage affecting many or all the tissues of the body simultaneously. For this reason it is commonly regarded as a general disease.

But if we look somewhat closer into the matter, we shall, I think, perceive that most, if not all, those which have been thus reputed general, are, in fact, reducible to the class of local diseases. The fluids are as much parts of the body as the solids; and if it be true, as I believe it is, that the essential and primary change in purpura is a change in the blood, its characteristic phenomena will be apt to present themselves wherever there is blood circulating—that is, throughout the whole system. The disease is local inasmuch as its seat is in that particular fluid, the blood: it appears to be general, because the morbid blood is every where present.

The same observations apply to a large class of febrile contagious diseases; to that state of the general system which is sometimes called anæmia; also to certain spasmodic affections, where the seat of the actual disease is in the whole nervous system.

What are called general diseases, therefore, are those in which the whole of some one system that pervades the entire body happens to be similarly deranged. Whether diseases can ever be truly called general in any more strict or absolute sense than this, is much to be doubted.

I have mentioned dropsy as a malady which, like hæmorrhage or inflammation, may occur in various parts of the body separately. It may also extend at once to all parts capable of receiving and retaining serous effusions: *i. e.* besides filling the large serous cavities, the effused fluid may occupy the universal cellular tissue. But even this apparently general dropsy will be found, upon careful investigation, to resolve itself, in most cases at least, into local disease within the thorax, or the abdomen.

The diseases which, in the sense now explained, may be called general, I shall arrange among the diseases of those parts of the system from which they have been ascertained, or may be presumed, to flow.

The first part then of the course will embrace an outline of general pathology, with an especial reference to those morbid conditions which fall to the care of the physician. In its relations to surgery, and to midwifery, pathology will be more particularly taught by the respective professors of those distinct though kindred departments of medicine. Do not however imagine that I take no interest in these; or that there can be any thing different in the principles upon which the several branches of pathological knowledge are founded. The truth is, that you cannot, if you would, separate the one from the other. You can neither understand what may be called medical, without learning much which as strictly belongs to surgical pathology; nor can you be ignorant of either without being in many important respects deficient also in the other. But the open field of pathology is of wide extent, and though we may, and must, survey the whole, its artificial divisions, its enclosures and allotments, will be cultivated best, and most improved, by a division of labour.

Afterwards, separate diseases are to be described and considered: all such, at least, as admit of being individualized, or presented under a definite shape. And here, I repeat, I shall chiefly pursue an anatomical order, as being comprehensive, and inartificial, and as tending to facilitate diagnosis. The diseases of parts which lie near each other are the most liable to be confounded.

I shall begin therefore with the diseases of the parts that appertain to the head and spinal cord; and then proceed in succession to those of the parts belonging to the neck, the thorax, and the abdomen; to those of the joints, the muscles, and the skin. I shall not hesitate however to deviate from this order whenever, by doing so, I can promote your convenience or advantage.

With that portion of the course which relates to particular diseases, I shall also interweave certain pathological considerations, applicable not so much to the whole body as to the several great systems of which it is made up. Thus, when I come to the brain, I shall speak of the functions peculiar to the *nervous system*, and of the obstructions and disturbances to which those functions are obnoxious; by way of preface to a detailed examination of the various affections of the several parts of that system. Before discussing the diseases of the chest, I shall bring before you, in a general view, the manner in which the great functions of *respiration* and of *circulation* are liable to be impeded, or otherwise disordered. As preparatory to the consideration of the diseases of the abdomen, I shall treat, in the same way, of the functions of *nutrition;* and of *waste*, which implies an interruption of those functions.

Still there would remain certain diseases, which would not necessarily find a place in this arrangement, inasmuch as their seat is uncertain, or only guessed at. Ague is one of these. Cholera perhaps another. It is quite unimportant whereabouts in the course such maladies are considered. I feel no concern about any imputations of imperfect or clumsy arrangement with which the plan that I propose to adopt may appear chargeable. I had rather not be cramped and hampered by attempting what abler heads than mine have failed to achieve, and what, in truth, I believe to be impossible, a complete and methodical system of nosology. My object will be to furnish as much instruction and information as I can, in the way that seems most likely to be practically useful to you.

Ague I shall venture to include among the disorders of the nervous system; and with it, the important subject of malaria will necessarily engage much of our attention.

The great questions of infection and contagion I shall consider in connexion with continued fever, which I rank among that remarkable class of diseases, the contagious exanthemata of Cullen.

Of sympathetic and of hectic fever, I must speak when upon the subject of inflammation.

This, then, is a sketch of the method I propose to follow. In the earlier lectures, with the general pathology, I shall endeavour to lay down principles. To these principles I shall continually refer, as occasions offer, both in those prefatory remarks with which I purpose to introduce the diseases belonging to the several great systems that contribute to form the body; and also in what I shall subsequently have to say concerning those diseases themselves in detail. In this way I hope to combine the advantage of repetition, which was the peculiar advantage of two short courses in a season, with that of greater completeness, which forms the recommendation of a single extended course. The same great advantage of repetition—or I should rather say of recapitulation—will be farther aimed at in the stated examinations of the class.

Such being a summary account of the topics to be embraced in the ensuing series of lectures, and of the order in which I hope to pursue those topics, it seems proper that I should now say a few words in explanation of the scope and objects of the course. The prospectus informs you that it will comprehend the *Principles and Practice of Physic.* What is the true import and promise of those words?

By the *principles* of medicine are meant those general truths and general doctrines which have been ascertained and established, slowly indeed, and irregularly, but still with considerable precision, by the continued observation of attentive minds throughout the entire progress of medicine as a science. These principles I profess to teach you. The *practice* of medicine, or the particular application of those general facts and doctrines, I shall *describe* to you; but I cannot profess to *teach* it in this room: nor can you learn it, except in a very imperfect sense, from my description of it. It is the science that I shall here endeavour to unfold. Skill and facility in turning that science to useful purposes I am unable to impart. These are qualities that do not admit of being communicated from one mind to another. The practice of physic, like every other practical art, is to be learned by its repeated exercise; by habit; by carrying its various acts into direct effect again and again; or, if they happen to require no manual dexterity, by looking on, and seeing them done again and again. There is this capital difference, however, between the art of healing and some other arts: that the blunders of early attempts may be both grievous and irremediable—may chance to spoil the goodly and precious machine they are intended to repair. There is this also peculiar to our art—that it proceeds upon observations made at the very time when its exercise is wanted; and that it requires *skill in observing* as well as *skill in acting.* You will find, what, perhaps, previously to positive trial, you might not suspect, that the senses—the eye, the ear, the touch—however sharp or delicate they may naturally be, require a special system of training and education before their evidence can be trusted in the investigation of disease. I do not know that these views are capable of being rendered plainer by illustration; for you must have observed a similar distinction between the science and the art in various other branches of human knowledge. The principles of navigation may be thoroughly comprehended by a person who scarcely knows a sail from a rope, and who would not be trusted, nay who would not trust himself, with the management of the simplest boat. A man may master the beautiful science of astronomy—may acquire the power of working with ease its sublimest and most abstruse problems — and yet remain in complete ignorance of the method of adjusting or using a telescope, and unable to ascertain for himself the position or movements of a single star. But place such a person night after night in an observatory—let him notice and imitate the proceedings of some one already skilled in examining the phenomena of the heavens—and he will soon acquire the requisite tact and facility himself. Just so it is with that branch of knowledge with which we are concerned. It is in the wards of a hospital, or in the domestic chamber—it is among the sick and the dying — and there alone—that you can either thoroughly or safely learn to practise physic.

In what, then, you may fairly ask, consists the value or the use of lectures on the practice of physic, if the practice of physic cannot be taught by lectures?

The main object of systematic lectures, explanatory of the principles, and descriptive of the practice of medicine, is to prepare the hearer for observing to the best advantage the actual phenomena of disease, and the power of remedies over it. They are intended to fit him for seeing with intelligence —to enable him to read, and understand, and interpret, the book of nature when it is laid open before him—in short, to qualify him for clinical study. One man shall travel into a foreign land, knowing nothing beforehand of its scenery or its climate, of its natural productions, its manufactures, or its works of art, and ignorant alike of the manners, customs, history, laws, and language of its inhabitants; another shall visit them after having furnished his mind with information on these subjects by reading, and by conversing with men who have already passed over the same ground. Supposing the visit to be limited in each case to a certain, but not long period of time, and I need not ask your opinion as to which of these travellers will reap the greatest crop of enjoyment and of profitable knowledge from his journey. Not less striking is the difference, in point of instruction and of interest, perceived by different students, upon their first admission to the bedsides of the sick, according as they have been well or ill prepared for the multiform spectacle of bodily suffering then disclosed to them. There are persons, indeed, who seriously, and I make no doubt in perfect good faith, warn the student against bringing to the contemplation of disease any preconceived opinions; who tell him that he must come with a free and unprejudiced mind, and see, and note, and judge of all things for himself. I also would have him exercise, and ultimately abide by, his own judgment; but surely if every man were to depend upon his own unassisted observation for his knowledge of disease, every man would be marvellously ignorant, and the *science* of medicine would stand still, or cease to be. "If no use be made (says Dr. Samuel Johnson) of the labours of past ages, the world must remain always in the infancy of knowledge." In truth, a person who, without any previous information concerning diseases, should betake himself to the wards of a hospital with the design of impartially and resolutely investigating their phenomena, such a person, however clear and strong his intellect might be, would find himself, for a long time, more puzzled than instructed by what he saw around him. He would be perplexed by the shifting and seemingly contradictory characters presented by the same malady in different patients; or in the same patient at different times; and not less so by the outward resemblance of disorders essentially unlike. He could not but be confused by the multitude of symptoms that crowded upon his attention on every side; and at a loss to distinguish important facts from those which were trivial, or useless, for the chief ends of his pursuit.

The business, therefore, of a lecturer upon the *Principles and Practice of Medicine*, or, as it is sometimes worded, *the Nature and Treatment of Diseases*, is first to fix upon some order in which to treat of the various subjects comprised in his course. The simpler and less artificial his arrangement, the better. The chief use of this classification is to facilitate the recollection of particular facts; and I have already told you that if I can distribute the multifarious forms of disease in such a manner as that they shall appear plain to your understanding, and take a secure hold upon your memory, I shall not trouble myself or you with a vain search after that phantom—a perfect methodical nosology. "In all such classifications," writes Lord Brougham, "we should be guided by views of convenience rather than by any desire to attain perfect symmetry; and that arrangement may be best suited to a particular purpose which plants the same things in one order, and separates them and unites them in one way, when an arrangement which should dispose those things differently might be preferable, if we had another purpose to serve."

Having settled this framework of his discourses, the next aim of the lecturer must be to collect and arrange from the voluminous and bewildering records of medicine, and from the necessarily more slender stores of his personal experience, whatever it may seem of consequence that his hearers should know concerning each distinct form of disease as it comes before them for consideration: to state all the facts which are well ascertained, and which tend to explain its symptoms, to elucidate its origin, to identify its nature, to direct its treatment, to accomplish its prevention: to sift the true facts from the false, the important from the trivial, the essential from the accidental: to analyze the relations of these facts, and ascending from particulars to generals, to point out those great principles and precepts which constitute the keys, both to the knowledge and to the management of all diseases of the same kind. It may even sometimes be his duty to notice and discuss mere theoretical opinions; to express his own sentiments upon disputed and undecided questions; and to admonish his audience against the danger of being led away by ingenious refinements, by the speciousness of novelty, or the boldness of speculation, from the more secure and settled results of careful observation improved by patient thought.

These duties of a lecturer on medicine are metaphorically, but aptly, expressed in the following passage from Lord Bacon:—

"Formica colligit, et utitur, ut faciunt empirici; aranea ex se fila educit, neque a particularibus materiam petit, ita faciunt medici speculativi ac mere sophistici; apis denique cæteris se melius gerit. Hæc indigesta e floribus mella colligit, deinde in viscerum cellulis concocta maturat, iisdem tamdiu insudat, donec ad integram perfectionem perduxerit."

I may venture to paraphrase it thus:—

The lecturer must not be the ant, collecting all things indiscriminately from all quarters, and using them as provender for his discourses;

Nor the spider, seeking no materials abroad, but spinning his web of speculative doctrine from within himself;

But rather the bee, extracting crude honey from various flowers, storing it up in the recesses of his brain, and subjecting it to the operation of his internal faculties, until it is fit to be produced, digested, and ready for use.

Such, gentlemen, are the main objects which I shall endeavour to keep steadily in view during the series of lectures I am about to commence; and I should ill deserve the chair I have the honour to occupy, if I did not feel the great responsibility under which I speak to you. The subjects with which we have to deal are not matters of mere speculative curiosity or intellectual amusement—to be taken up to-day and dismissed with unconcern to-morrow—but they relate to questions of life and death. The opinions you are now to form or to embrace, are for the most part the opinions upon which in after life you will confidently and constantly be acting. The comfort or the misery of many families may probably hang upon the notions that each of you will carry from this place. Therefore it is that I feel myself to be engaged in a very serious undertaking. Doctrines and maxims, good or bad, flow abroad from a public teacher as from a fountain, and his lessons may become the indirect source of incalculable evil and suffering to hundreds who have never even heard his name. These reflections have impressed upon my mind an almost painful sense of the obligation imposed on me, by my present office, of closely sifting the facts, and of carefully examining the principles to be derived from those facts, which I propose to employ for your instruction and guidance.

But amid all the responsibilities, gentlemen, both of teacher and of learner, the profession which you and I have chosen, or which circumstances have prescribed to us, is one with which we may be well satisfied. It has its own peculiar privileges and advantages, and if rightly pursued may prove to each of us a lasting source of mental and moral profit. I have already reminded you how it brings under our minute and daily notice that most remarkable portion of matter which is destined for a season to be the tabernacle of the human spirit, and which, apart from that singularly interesting thought, is replete in itself with the materials of wonder and admiration. Our daily vocation tends also, by the constant exhibition of human pain and weakness, to awaken the best emotions of our nature, to foster the benevolent affections, and to promote the charities of social life. It affords us continual opportunities (and woe to him who shall wantonly or selfishly neglect or abuse them) of shewing kindness to our afflicted fellow creatures, of manifesting love towards our neighbour. It is free, moreover, or it may and should be free, from party turmoil and sectarian jealousy. Pain and danger are the only passports necessary to its good offices. It regards no political differences; and the poor no less than the rich are embraced in its ministrations. Hallowed, as it ought to be, by religious motives, and by the sense of duties fulfilled, it offers its peculiar benefits and blessings without stint or scruple, to men of every religion, and to men of no religion at all. It conveys to ourselves the most salutary lessons; teaching us in how many instances, forming a large majority indeed of the whole, bodily pain and anguish proceed directly or remotely from evil courses; the sins of our fathers, our own unbridled passions, the malevolent spirit of others. It shews us too the uses of such sufferings, which are mercifully designed to recal men from the strong allurements of vice, and the slumber of temporal prosperity: teaching that it is good for us to be sometimes afflicted. It is full at the same time of the most solemn warnings, and speaking to us day by day of death, it reminds us that our time also is short and uncertain, and but scantily proportioned to our moral wants and intellectual aspirations. Followed up in the true and Christian spirit of gratitude towards God, and love towards man, this noble profession is second only in usefulness and dignity to that of the servants of the church, and like it, when faithfully administered, it will assuredly become its own abundant reward.

A
CLINICAL LECTURE
DELIVERED TO THE
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AMONG the patients now under treatment in the wards of the Infirmary, there are several whose cases are worthy of particular attention.

I wish to draw your notice, in the first place, to a case of dropsy with albuminous urine, which has terminated in complete recovery. Michael Ryan, in Ward No. 5, was admitted on the 22d of June, labouring under ascites, with great distension of the scrotum and oedema of the legs, in a state of great debility and exhaustion. He complained also of rheumatic pains in his legs. His disorder had been brought on by exposure to cold. He had been working with his legs in mud and cold water in cleaning a dock. He had no discoverable disease of the thoracic organs, or of the liver. His urine was stated to be not very scanty, and of the natural colour. When subjected to heat, it was found to contain about two-thirds of coagulable matter: this was repeatedly done, and uniformly with the same result. Such was the permanent state of the urine for some time. Michael Ryan is now convalescent; he feels himself perfectly well; his aspect is altogether changed; he has no longer ascites or anasarca; not even oedema of the legs. His urine is perfectly natural; it has been of late repeatedly subjected to heat, without displaying albumen. He will be discharged "Recovered" in a few days. Before I advert to the practice followed in his case, I shall make a few general observations on his complaint.

The kidneys, in a state of health, separate daily from the circulating fluid so great a portion, that any considerable change either in the quantity or the quality of the urine, if it subsists for some time, must obviously exert a great influence on the physical state of the body, and on the health of the individual affected. If the quantity alone is materially diminished, some marked effects must soon follow. When the diminution is gradual, the overloaded vessels relieve themselves for a time by pouring out a part of their contents into the great cavities, and into the cellular tissue, and the patient becomes dropsical. If the morbid influence which affects the functions of the kidneys is such as to produce a sudden and entire cessation, other results ensue. In some instances a partial relief is obtained by a copious fluid secretion into the stomach and intestines, and the patient vomits great quantities of a fluid which in its sensible properties more or less resembles urine. A well-known medical practitioner, who lived some years in this city, was thus affected. He had been in indifferent health for some time, when, after exposure to cold and fatigue, he was suddenly seized with total suppression of urine. This was speedily followed by almost constant vomiting, and he threw up, during two or three days, in large quantities, a fluid which in its sensible properties bore a considerable resemblance to urine. When this vomiting ceased, which it did rather suddenly, he became affected with stupor, and died comatose. A girl who was some years since, during many months, in the Infirmary, laboured under suppression, which was not always complete, for the catheter occasionally brought off a very small quantity of urine. Every evening she threw up a large quantity of fluid, resembling urine. The fluid ejected in these cases has been seldom examined with care. In the instance to which I have last adverted it was accurately analysed, and was found to contain urea, and occasionally benzoic acid, which are well-known products of the fluid secreted by the kidneys. It was suggested to me as probable that this female practised deception, and swallowed, in the first instance, the fluid which she was seen to eject from her stomach, and that it was really her urine. She was carefully watched while in the ward (No. 4), and I think she could not possibly have found opportunities for carrying on deception of this kind; and had it been so, and the stomach in its usual state, the fluid would have been sometimes mixed with the ordinary contents of that organ. In another case in this Infirmary, I understand that urea and benzoic acid have been discovered in the fluid ejected under similar circumstances from the stomach. In future the greatest care will be taken to investigate similar cases.

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The method of treatment pursued in both these cases was similar. It consisted principally in the abstraction of blood and the use of calomel, and these are the only remedial means which are of any importance in this disease. In both instances, being used early and perseveringly, they were speedily efficacious, although the symptoms were at first severe. Morris was bled from the arm, and the female patient had leeches frequently applied to her throat. Local bleeding is generally thought the most appropriate remedy, but when there is much arterial excitement, or general inflammatory action, it is almost useless to attempt reducing the local inflammation till that state is relieved by venesection. Even in the ordinary gastro-enteritis, which is the form of continued fever that generally occurs in this hospital, we often find that one bleeding of twelve or fourteen ounces will save the application of a great many leeches to the epigastrium, and relieve the patient much more speedily and effectually. Next to bleeding the most important remedy in laryngitis is mercury. I generally order three grains of calomel with one of Dover's powder to be taken every third or fourth hour until the gums become sore, and then to be immediately discontinued. In both of these cases the disorder, which had been but partially relieved by bleeding, gave way at once as soon as the mouth became affected; the cough nearly ceased, the constriction of the throat and sense of difficult breathing approaching to suffocation was removed, and a free expectoration followed. Tartar emetic was also given to these patients in small doses, and Phœbe Powells took one dose of three grains, which produced vomiting and some temporary relief, but it was from mercury that she derived the only permanent benefit.

Richard Gotham, in No. 6, was admitted on the 21st of July, aged twenty-five years. He is a sailor, and has just returned from Newfoundland in a miserably emaciated, and enfeebled state, labouring under syphilitic ulceration of the throat, having his skin beset with large patches of syphilitic rupia, which slough off and leave ulcerous sores; there are two such ulcers on his scalp, which extend almost to the skull. He has besides, phagædenic primary sores extending nearly all round the glans. Some gentle opiates and mucilaginous drinks, with a nourishing diet, were ordered for this man during the first two or three days. On the 24th of June he was put upon the course of medicine which he has from that time continued. This was three ounces of the compound decoction of sarsaparilla, with five grains of the iodide of potassium three times in a day. His sores were dressed with the ordinary black wash. Under this treatment he began immediately to improve. All the sores filled up, and they are now every where nearly healed. He has become fat and healthy in appearance. At the end of a month from the period of his admission he was evidently convalescent. This relation proves that there are some cases of primary and secondary lues which are curable by means of the iodide of potassium joined with the decoction of sarsaparilla. The patient had been under no medical treatment. He had taken no mercury or other powerful medicine.

There was a case about two years ago in No. 7, which some of you probably remember, treated by the iodide of potassium alone. It was the case of a Welshman, who came into the Infirmary, having his body covered with ulcerous patches, which left scarcely the space of an inch of sound skin from his head to his feet. He had been ill three years, and during a great part of that time, according to his own statement, he had been under the influence, more or less, of mercury. He took, while in the Infirmary, no other medicine than nine grains of iodide of potassium three times in a day, and he recovered entirely in a very short space of time. These cases prove that there is a form of syphilis, or of syphiloid disease, in which the preparation of iodine, before mentioned, is very serviceable, and is, indeed, capable of affording a cure. How are we to discriminate these cases, and what is the real nature of those instances of syphiloid disease, like that which I have last mentioned, in which mercury is without any curative efficacy, and even injurious? Some writers maintain that mercury is, in these instances, the cause of the evil. We hear a great deal about mercurial disease; but those who have considered the matter in this point of view have not told us why mercury never induces any such malady when it has not syphilis or some similar complaint to begin upon. Mercury is often given here freely in severe cases of bronchitis, pneumonia, and other inflammatory diseases; but its use is never followed, in such instances, by the appearance of any syphiloid complaint. There is some mistake in the notion that such cases are instances of disease produced by mercury. After all that has been written on this subject by the celebrated surgeons of the present day, or of that which has lately passed, I know not that any writer has thrown much light upon the subject, except Mr. Carlyle of Dublin, who has set forth a most ingenious and certainly probable hypothesis, which, as I hardly doubt, contains the real and true solution of this difficult problem, although it may yet require some modification, and more extensive evidence, before it can be looked upon as fully established. Half a century ago all venereal affections were classed under one head, and patients were salivated for gonorrhœa under the impression that they had contracted lues. Since the time of John Hunter and his immediate followers, it has been admitted that these are two distinct diseases. Mr. Carlyle maintains, and has, I think, gone far towards establishing the fact, that there is a greater number of such contagions;—that there are, at least, three diseases, each of which has its appropriate primary and secondary symptoms. Gonorrhœa is one of these: the primary disease, as every one is aware, is a specific inflammatory affection of the mucous membrane of the urethra: this is followed occasionally by secondary symptoms, which are, rheumatic affections of the limbs, and slight cutaneous eruptions, chiefly of a papular kind. Secondly, genuine syphilis has its primary symptoms; chancres, that is, excavated ulcers with retracted edges, and a hardened base, and the secondary symptoms are excavated ulcerations in the throat, eruptions of a scaly character, or syphilitic lepra. Sometimes these are merely discolourations of the skin, or purple blotches without scabs, or easily losing them. The tertiary symptoms, as they have been termed since the time of Mr. Hunter, are, affections of the periosteum, giving rise to pains in the bones, as they are termed, and to nodes. A third and different form of secondary disease is manifested by cutaneous defædations of a more severe kind, such as tuberculous indurations, which are often seen about the forehead. With these may be classed the disease of the skin resembling rupia, and which may be termed syphilitic rupia, and which has been well exemplified in the case of Richard Gotham. These secondary affections, which I have last mentioned, and to which must be added ulcerations of the throat and palate, are sequelæ, according to Mr. Carlyle, not of genuine chancre, but phagedenic sores, arising from a contagion different from that of true syphilis. A disease is said to prevail in Portugal, and in the ports of the Mediterranean, which is of this description, and which is much more dreaded than the ordinary form of syphilis. The primary sores in the case of Richard Gotham are phagedenic ulcerations; and the succession of symptoms thus coincides with Mr. Carlyle's opinion. It is of great practical importance to mark this discrimination, since it appears to be a fact that the phagedenic ulcerations, and the secondary symptoms, which constitute their appropriate sequelæ, indicate a disease that is always aggravated by mercury. It would be a fortunate thing if it should be found that this complaint, in which mercury is inadmissible, can be cured by the hydriodate of potass and the decoction of sarsaparilla; and this, from the facts which I have mentioned, appears likely to be the case. In the two instances to which I have alluded, these remedies appeared to act as if they possessed some specific power: we may frequently observe secondary symptoms to disappear under the same treatment, but we have seldom an opportunity of tracing the disease from its primary form, as in the instance of Richard Gotham.

Cure of Chorea.

Charles Haynes, a little boy, aged nine years, came into the hospital on June 25th, and he has just been dismissed. You have all seen him in No. 5, labouring under chorea. When he was admitted, a cathartic draught, the ordinary purgative mixture of infusion of senna, with Epsom salt, was ordered for him, to be taken every morning, and this, with the addition of the shower bath, was all the medical treatment that he underwent. He immediately began to improve, and left the Infirmary, as you know, quite well. Chorea is a disease of the brain, that is, the pathological state which is the immediate cause of the symptoms, is an affection of some part of the encephalon. This does not appear obvious from the ordinary phenomena of the complaint, which consist nearly in jactitation of the limbs: but the inference may be drawn, first, from the connection of chorea with other confessedly cerebral diseases, such as epilepsy, with which it is often combined; secondly, from the consequences of long-continued chorea, which are similar to those of epilepsy and paralysis, namely, dementia, or an obliteration of the mental faculties: it is not uncommon to see children half idiotic from chorea, and they become in time completely so, if the disease is not arrested; thirdly, this disorder affects sometimes all the muscles of voluntary motion; in other instances it attacks those of one side only, just as the muscles of one side are affected, either in hemiplegia, or in some cases of epilepsy: hence it may be inferred that the morbid cause acts immediately on the common centre of the motive power, which is in the encephalon; lastly, in fatal cases of chorea, for it is sometimes fatal, there is found more or less of effusion on the surface or in the ventricles of the brain. But chorea, though its proximate cause, or the immediate cause of its phenomena, is an affection of the brain, is not discovered by experience to be most successfully treated by remedies applied to the head, such as are found to be useful in other cerebral affections. It appears that the primary cause is in some other part of the body, and the affection of the brain is but an intermediate link between it and the symptoms which manifest themselves. It is by removing the primary cause that we cure the disease. This is often an unhealthy condition of the alimentary canal, and chorea may be cured in many instances by purgative medicines. I have seen a case of chorea which had already induced extreme debility, and the appearance of imbecility, cured by a course of purgative medicines alone. This plan was first recommended by Dr. Hamilton, of Edinburgh, in a well-known work on purgative medicines. It was pursued in the case to which I am now referring: the only adjunct to purgatives was the shower-bath, and the patient began immediately to improve, and was soon completely well. I generally begin the treatment of a case of chorea by ordering a black draught every morning, and sometimes find this all that is required. The cases of chorea which I have found curable by purgative medicines alone have been those of boys: I know not whether this may be accidental, but I rather think not. In most instances, in females, the nervous system appears to be too much shaken, and the brain too much disordered, to be thus easily curable by purgatives unassisted, and that especially when the disease has been occasioned by a fright. In these cases metallic tonics are found to be the most useful auxiliaries. It has been the custom to use chiefly the oxide of zinc in this hospital: we find it the most efficacious as well as the most easily administered remedy of this class; it is given at first in small doses, as 5 or 6 grains, three times a day, which are gradually increased to large ones, such as 20 or 25 grains. In the course of 25 years I have seen but one or two cases in this Infirmary in which this remedy failed. It is worthy of note that this treatment seems never or scarcely ever to be successful in out-patients: the cause is obvious—a regular and simple diet, such as these patients have in the wards of the Infirmary, is a necessary condition for the cure.

We have in the infirmary at present two cases of cerebral disease, which have been treated by issues on the scalp, made in one instance by incision, and in the other by the application of caustic. One of these cases is that of a young woman, named Shipway, in No. 2; and the other of a girl, named Kirkby, in No. 4. Mary Anne Shipway had been nearly twelve months in the Infirmary before the issue was ordered. She was admitted on account of some surgical complaint, and afterwards sent into the medical wards: there she laboured under some pain in the right side of the head under the parietal bone. Her disorder was treated by the ordinary remedies, not inactively, but without arresting its progress; it increased; the pain was most distressing, and without intermission: the seat of the disease was apparently the arachnoid, or the surface of the brain; her faculties became impaired: she was at length so demented or imbecile, that it was a question whether she should be sent to St. Peter's Hospital, where there are wards for insane persons and idiots. It seemed right, however, to make a trial of this remedy in the first instance, and a long issue was formed on the scalp over the sagittal suture, by means of the alkaline caustic, which was applied in the form of a paste. Some time elapsed before any improvement took place in the intellect of the patient, but she soon obtained a remission of pain; she was still 'silly,' as the nurse and the patients in the ward observed. However, she has now recovered an entire possession of her faculties, and she has scarcely any remains of the pain which formerly tormented her: her only suffering is for a short time after the issue has been dressed. There seems little room for doubt that we may soon venture to remove it. The other case, to which I have referred, is a patient of Dr. Wallis. I make no scruple of mentioning it, as I am sure he would not object to my so doing. This girl laboured under typhoid fever, affecting the brain. She sank into a state of complete coma; lay perfectly insensible, passing her evacuations involuntarily, and incapable of being roused. She appeared almost moribund. An incision was made over the sagittal suture, by Dr. Wallis's direction. The patient became soon more sensible, and is now convalescent.

This method of applying counter-irritation in diseases affecting the brain has been until lately nearly peculiar to the Bristol Infirmary. I wish particularly to call your attention to the fact that we never make use of it except in cases of the most severe and intractable disease; it is a severe remedy, though more so in appearance than in reality, and should only be used in cases in which all milder means have failed, or afford no expectation of benefit. I have been informed that in London this practice has been very much censured. It has been represented that we have recourse to it on trivial occasions. I have been told that a metropolitan teacher of medicine, when going through a hospital with his pupils, has been heard to address a patient, having some comparatively trifling affection, in such terms as these: — "It is lucky for you that you are not in the Bristol Infirmary, or you would have had your head cut open before now!" If any of you should chance to hear observations of this kind, you will, I am sure, correct such a mistake, and assure the party under so erroneous an impression

that we never adopt the method which he censures, but in cases which admit of no other hopeful means, either of preserving life when about to be extinguished by disease of the brain, or restoring the intellectual faculties, or of curing amaurosis, or inveterate cases of epilepsy; and under such circumstances it has been found, under the blessing of divine Providence, to have been in some cases completely effectual.

AN INQUIRY INTO SOME OF THE CONSEQUENCES AND CAUSES OF FAILURE OF THE

NEW OPERATION FOR THE CURE OF STRABISMUS OR SQUINTING.

By. E. W. Duffin, Esq.
Surgeon.

[*For the Medical Gazette.*]

We cannot reflect on the phenomena which characterised the two last cases related in the second portion of this communication (Sept. 18) without attempting some solution of their peculiarities. In the first patient, it will be recollected, that although only *one* eye, the left, was subjected to operation, *both* eyes respectively were brought under an undue ascendancy of the external rectus, when this muscle was called into action by directing the axis of the eyes to an object placed at either side of the individual, without turning the head. When the girl looked at anything placed at the left-hand side of her, the cornea of the corresponding eye was partially buried in the external canthus, while the pupil of the right eye was not moved beyond the centre of the orbit, and *vice versâ* when the object was placed to the right of her; though certainly not in so great a degree. Her sight was under either circumstance double, and the position of the eyes that of a very unpleasant leer; but she could regard an object placed directly before her with the most perfect accuracy. In the second case, the young lady squinted with both eyes, though in no very remarkable degree. The first operation on the left eye was attended by every indication of the most complete success. At the expiration of three weeks the tendon of the adductor in the right eye was divided, and instantly the pupil of the left was turned outwards, and vision became double; even when she looked at an object placed immediately before her. In the course of an hour or two after the operation, however, she acquired the power of directing the axes of the eyes with the utmost accuracy when the object was placed before her; but it was found, if she looked at any thing on one side of her, that then the external rectus of that side exerted so great an ascendancy as to completely turn the cornea to the external angle of the orbit, when she saw two objects instead of one. This undue action of the external rectus, however, was more marked in the left eye, that first operated upon, than in the right, in which, indeed, it now no longer exists; hence I am in hopes that in the course of a short time longer it will wholly cease in the left eye also. The facts of these two cases suggest several very important and interesting queries worthy the attentive consideration of the physiologist, the accurate solution of which would clear up much of the difficulty that attends the theory of that singular sympathy which exists between the two eyes in order that their axes may be always so directed to the same object as to render vision single. The more we investigate this subject, the more we shall be struck with the beautiful and inexhaustible resources of nature, and admire the consummate wisdom, skill, and beneficence, with which she adapts them to the accomplishment of the end in view. When the adductor muscle is cut across, and the eye liberated completely from any adventitious or other attachment that may still retain it in its unnatural position, the abductor muscle, if in a healthy condition, immediately draws the pupil to the *visual* centre of the orbit; for the *true* centre of the orbit is not the natural position of the pupil when the eyes are directed into space.* In some instances, immediately after the adductor is divided, the cornea is turned somewhat outwards, and remains in this situation for a day or two, or even much longer—until, as it would appear, a reunion is effected between the divided tendon of the sclerotica, which generally takes place within fourteen or sixteen days; the new attachment being a little behind the original insertion, and, what is very satisfactory, without any return of the original evil.

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* If a careful measurement be made when the eyes are completely quiescent, it will be found that the pupil is placed in a very trifling degree nearer to the canthus, than the centre between this and the outer angle.

The first question which suggests itself is, why does not the abductor in every instance turn the eye outwards when its antagonist muscle is divided? The most simple and natural reply to this query seems to be the fact, that, in a state of health, voluntary muscles have no disposition to contract unless called into action by an effort of the will; and that when the eye is restored to the position it ought to occupy, the abductor muscle being then completely relaxed, will not draw it unduly outwards, unless that effort of the will be exerted. When, however, it does act in this untoward manner, we may argue, that having been long accustomed to exert its influence against a morbidly contracted antagonist, and other sources of opposition, it may have acquired more than natural powers of contraction. But these cease in the course of a short time, being lost either from want of practice, or from being met by an equivalent degree of resistance when a new union takes place between the divided tendon and the eyeball. Should there exist a considerble cast in the other eye, then we have an additional power from this undue contraction. We must recollect, in such case, that when the individual looks outwards to the side that has been the subject of operation, the other eye will be turned more than naturally towards the nasal canthus, and that the effort to render the axes of the two eyes in this direction more correct has been favoured by the division of the adductor or antagonizing force; hence the eye will be morbidly directed outwards, in order that its axis may correspond with its faulty companion.

But it sometimes happens, we have seen, that the eye not subjected to operation is directed outwards as well as that in which the tendon has been cut. How, then, are we to explain this apparent anomaly? The abductor and adductor, it is true, are antagonist muscles, but their actions are performed quite independent of each other. The controlling power of each is to be sought for in the corresponding muscles of the opposite eyes respectively: *i. e.* the abductor of the one, and the adductor of the other, act in concert, and modify or restrain the irregularities of each other in all the consentaneous lateral motions of the eye that demand an effort of the will. The external rectus, for example, of the right eye, is the antagonist of the corresponding internal muscle, but its controlling power is seated in the adductor of the opposite eye; and thus it is we are enabled to direct both organs laterally, so as to make their axes correspond.

If, then, the internal muscle of the left eye be cut across, its antagonist does not contract unduly, unless from the temporary cause alluded to, because it is still in connection with its controlling power—the adductor of the right side, and the nerves which supply it with energy; and were it to turn the pupil of the eye to which it is attached outwards, the adductor of the other eye, with which it operates consentaneously, would turn the pupil of the eye to which it belongs inwards—an effect it only produces when called into action by an effort of the will. But if the adductor of the right eye is much contracted, and an obliquity exists in this eye also, then it is possible that the direction of the pupil outwards may not proceed from the cause already alluded to, but from that nervous sympathy which regulates the consentaneous actions of the two eyes; more especially when the person directs the pupils to an object placed at one side of him. It will be remembered that as the one pupil, under these circumstances, is nearly buried in the inner canthus, so the other must turn very much outwards, in order that the axis of each may correspond.

If we proceed still further in this inquiry, and examine the anatomical distribution of the nerves, we are at once struck with the omniscient foresight evinced in this particular. Were the external and internal recti muscles supplied with energy from the same source, the third nerve, the consequence would be, that when these organs are called upon to contract by an effort of the will, they would do so simultaneously, and thus the eye would remain fixed between two antagonising forces. But fortunately these muscles are not supplied with energy from the same source, the internal, superior, and inferior recti, all deriving their energy from the third pair of nerves, while the external rectus is supplied by the sixth pair.

On the other hand, were the functions of the abductors not controlled by the nervous communication that subsists between them and the adductor muscles of the oppposite eyes respectively, we should find both of the external recti to be excited into contraction simultaneously by the same act of volition; the consequence of which would be, that both eyes would turn to the external angles, instead of the one being turned inwards and the other outwards, as nature so wisely designed.

When the eyes, then, are fixed on an object placed at either side of the individual, the adductor of the one eye and the abductor of the other act in concert.

If the internal rectus of the left eye, for example, be divided, the eye does not turn unduly outwards when the pupils are directed to an object placed at the left hand of the individual, because the left eye, in such case, acts in concert with the right, and the nervous energy by which each is respectively controlled remains entire; the sixth nerve on the one side, and the third nerve on the other. That the abductor, therefore, should contract beyoud the desired extent, when its antagonising adductor is divided, is not natural, because the muscle and nerve by which its contractions are sympathetically controlled, and by the consentaneous influence of which vision is rendered single, remain unimpaired. Besides, it will be remembered, that after an eye has been operated upon successfully, the individual is no longer capable of directing the pupil inwards; and that consequently, as the eyes perform their functions and movements in concert, the controlling power which retains their axes parallel under ordinary circumstances, even when both adductors are divided, will have a disposition to restrain the contractions of the abductors within natural limits; although, in every instance, they may not be sufficient for that purpose. The two muscles that contract together to produce the same movement in both eyes, viz. the two adductors, are supplied with nerves from the same source, while those which produce in each eye a different movement calculated to fulfil the same end, are supplied with different nerves; but these nerves, it will be recollected, are united together at various points of their course in a most remarkable manner, as will presently be demonstrated. Indeed they become sufficiently identical, if I may so express myself, to perform the functions of one nerve. When, therefore, the eye is directed unduly to the outer angle of the orbit, after the internal rectus is divided, we can only explain the circumstance by supposing that the antagonising muscle no longer meeting with the physical resistances which has rendered it unusually powerful, contracts, *pro tempore*, more than is desirable, because it is in reality the stronger muscle, although till the eye was liberated this did not appear to be the case.

The truth is, as before stated, it had to contend not only against its morbidly shortened antagonist, but also against a thickened, contracted, and perhaps adherent condition of the submuscular cellular tissue, which to a certain extent bound the eye in its abnormal position.

The unnatural position of the eye outwards, therefore, under such circumstances, is seldom of long duration; the resistance being destroyed the cause of increased power in the muscle ceases, and in a short time the eye is restored to its natural position.

This explanation, it may be argued, clears up the difficulty very fairly, as regards the young person in whom only *one* eye was operated upon; but it does not explain the other, in which the nomal-direction of the pupils occurred, until the operation had been performed on the second eye also. In this case it appears to me that the abductor of the left side did not evince any disposition to inordinate action when its antagonising adductor muscle was divided, because it had not acquired any undue contractile power, and was still under the natural influence of the right eye, and the nerves by which the muscle is supplied. The obliquity of vision moreover was not great, and the motions of the eye by voluntary effort were very free: hence we may conclude, that the external rectus had not been habituated to contend against any unnatural resistance, which might strengthen its ordinary powers of contraction. But for what reason, as soon as the second operation was performed, both abductors should evince a disposition, when called into action, to draw the pupil unduly outwards, is not very clear. It is true the muscles with which they each previously acted in concord were severed from their attachments, but the nervous power by which their contractions were excited and controlled remained the same. There evidently existed, therefore, some further sympathy between the two muscles respectively, dependent upon their integrity, and this ceased as soon their attachments were destroyed, and will I have no doubt be restored when they have formed new insertions into the sclerotic coat.

There are two causes, therefore, to which we may ascribe undue contraction of the external recti muscles, when the eye is liberated at its internal periphery, and this untoward circumstance supervenes.

When it happens in the eye that is the subject of operation, we may presume it to be owing to the abductor having acquired unusual power during the continuance of the obliquity, and exerting that power as soon as it is at liberty to do so. In such case it will cease when the acquired energy ceases to exist, or the antagonising muscle becomes re-united to the sclerotica. When it occurs in the opposite eye to that which has been the subject of operation, it proceeds from the destruction of that restraint which the abductor derived from its nervous connection with the adductor of the opposite eye; the third and the sixth pair of nerves mutually influencing and controlling each other in the simultaneous lateral motions of the eyes. As already stated, if we consider the connection between the third and sixth pair of nerves anatomically, we shall find it to be in reality extremely intricate and complicated; and, as would now appear, for a very evident and important reason.

The third nerve (motor oculi), and sixth nerve (abducens oculi), both arise from the track of the fibres of the corpus pyramidale (tractus motorius). These fibres are continued through the pons varolii into the crus cerebri; so that although the sixth nerve issues from the brain, at the upper part of the corpus pyramidale, and the third from the crus cerebri, they may be considered, in point of origin and function, as a single nerve, merely separated by the breadth of the pons varolii.

In addition to this identity of origin, the third and sixth nerves communicate very freely in the cavernous sinus, by means of the carotid plexus; and indirectly through the medium of the ciliary ganglion, carotid plexus, and superior cervical ganglion of the sympathetic nerve. The first of these communications is established between the inferior division of the third nerve, which supplies the internal rectus muscle, and the ciliary ganglion; the last between the sixth, and the superior cervical ganglion; while the carotid plexus is the bond of communication between both.

But there are other causes of failure, of which it is of the utmost importance the surgeon should be fully apprized, previous to subjecting his patient to operation; that his sanguine expectations of success may not be disappointed, and his prognosis belie his practice. When, during childhood, the eyes have been repeatedly affected with strumous or other inflammation, of which, in the absence of more positive information, we often perceive evidence in the existence of nebulæ and specks on the cornea, we may find the whole of the muscles and investing cellular tissue of the eye, so extremely adherent to the sclerotica, that it would be imprudent to detach them to the extent necessary to liberate the globe in a sufficient degree to admit of its assuming the proper position, even were the rectus and membranous attachments on the exterior of the organ to have escaped the ravages of the disease, but which, under such circumstances, seldom happens. When, then, we find the motions of the eye very limited, and that the patient is incapable of bringing the pupil by an effort of his will to the centre of the orbit, having previously suffered inflammation, either during childhood, from accident, or other causes, we should consider well the probable degree of success before we operate. I have met with a few examples of this description in my own practice, and have witnessed several in that of other surgeons. In one instance, a man operated upon in Nottingham, on one eye, by my friend Mr. J. N. Thompson, and on the other by myself, the whole of the investing structures of the inner periphery of the eye were found to be thickened, contracted, and infiltrated to such a degree, that they cut like cartilage, and required both extensive and careful dissection from the sclerotica.

Fortunately the mischief was confined to the inner portion of the sclerotic surface, so that when the eye was liberated at this part, the external muscle had power to draw the pupil into its proper situation, and the case did well. This man had two small specks on the one eye, and a nebulous opacity on the other. Notwithstanding this disadvantage, his vision was much improved by the operation, as his eyes were previously buried in an unusual manner in the nasal canthus, from which position he could move them but in a very slight degree, being only able to bring the pupils, by the greatest effort of the will, to a point scarcely midway between the inner canthus, and the centre of the orbit. His sight was defective, I imagine, not only because he could not see any object he looked at with both eyes at the same time, but because it was difficult for him to turn the eyes sufficiently outwards to admit of the object being depicted on the sentient part of the retina destined to transmit visual impressions to the sensorium. May it not happen, also, when strabismus is very marked, and the eye confined, as in this example, that the optic nerve suffers inconvenience from being slightly bent on itself; partial amaurosis being a frequent attendant on squinting.

I afterwards operated upon a lady whose right eye was turned so much inwards that it was with difficulty she could draw the pupil from the nasal canthus: this patient had been twice couched for opacity of the lens in this eye, and had, on each occasion, suffered from severe inflammation. She informed me that the obliquity of the eye had been considerably increased, and its freedom of motion much diminished, by the inflammatory attacks she had experienced.

I found the same amalgamation of muscular, tendinous, and cellular tissue in this case that I have already described. After the operation, the abductor could not turn the pupil outward, though it was able to draw it, by an effort of the will, to the centre of the orbit, and gradually, in the course of a few days, it acquired considerably more power; from which it would appear that the muscle was not only bound down by morbid adhesion, but had also been kept on the stretch for so long a time that it had lost its contractile power; and that it was from this state of preternatural tension only, that it recovered: just as the muscular fibres of the bladder lose, *pro tempore*, their contractile power, when this viscus has been over distended by retention of urine.

Although only partially successful, as was anticipated, my patient was much gratified by the operation, as she suffered very trifling inconvenience from it, and it materially improved her sight; indeed in a much greater degree than could have been expected, considering that the eye was deprived of its lens.

The fact of the external muscle requiring time to recover the contractile power, of which it would seem that it is deprived by long-continued extension, I have frequently witnessed, and always found in such case that the patient was unable to bring the pupil to the centre of the orbit previous to operation.

A remarkable example of this occurred to me at Derby, when I was assisted by Mr. Douglas Fox, Mr. Wright, Mr. Godwin, and other surgeons of that town, who very kindly procured a large number of patients, for the purpose of aiding in making the present observations. In the case alluded to, the woman was unable to turn the pupils sufficiently towards the centre of the orbit to expose the whole of the cornea to view. Both eyes were liberated by the operation, but a considerable time elapsed before the pupils approached their proper site. They did so, however, as much as could be expected, before she left the room, and the case has since, I am informed by Mr. Fox, improved in a remarkable degree. She was almost entirely amaurotic before the operation, and recovered her vision, so as to distinguish small objects, within an hour afterwards. About ten days ago I operated on a similar case, and a week elapsed before the eye was restored to its proper site.

Another cause of failure, and one of much more importance than any yet discussed, is paralysis of the abductor, or adductor muscle. I have not seen a case exemplifying the former, but can readily imagine the possibility of the occurrence, because I have seen three cases of the latter. In one of these, unfortunately, the tendon of the external rectus was cut by a friend of mine in the country; the case being at first regarded as an example of contracted abductor. It proved, however, to be the contrary—paralysis of the internal rectus. This might have been discovered before the operation, had the surgeon been on his guard, because there were other evidences, such as slight ptosis and impaired volition as regarded the movements of the eye inwards, sufficient to point out the true nature of the case. There was, however, no loss of power in the retina; her sight was good. She had suffered much during childhood from cerebral disease, accompanied by convulsions.

I have at present a very remarkable case of paralysis under my care, in which the eyes are both turned outwards, the left completely, although the loss of muscular power in the limbs is on the right side of the body. The affection of the eyes occurred at the moment of paralytic seizure, and singularly enough, as in the above case, is limited to the adductor muscles.

Another cause of failure is want of judgment in selecting the cases of strabismus that are proper for operation. Unfortunately, such is the mania for this operation, that all who squint are deemed proper subjects for the test of surgical skill. But there are numerous examples, in addition to those I have indicated, that ought not to be treated by this means.

A girl was shewn to me who had been operated upon, and whose eyes afterwards turned spasmodically in every possible direction. On inquiry I found she had twice suffered from chorea, and that the squint was a sequela of that disorder. At times, for weeks together, no obliquity of vision was perceptible; the affection would then recur, and continue for an indefinite period. Her eyes were very unsteady, and it was quite evident that these relapses were local returns of her former ailment, dependent, in all probability, on disordered bowels, temporary mental or other irritation. The treatment in this instance should have been medical; and so it should be in all cases which we are informed are intermittent, and seem to depend on cerebral or gastric disorder, teething, convulsions, vermination, or acute disease.

The permanency of strabismus should be well established before any operation is had recourse to.

When not congenital, the disorder is, no doubt, ninety-nine times out of a hundred a sympathetic spasmodic affection, more or less evanescent or intermittent in its nature, and should for a length of time be regarded as such.

The period at which it may be viewed in any other light will, of course, vary in different individuals, and must be dependent on a multitude of circumstances, of which every practitioner is capable of judging, when once his attention is directed to the subject, and which, therefore, need not be insisted on in the present remarks.

14, Langham Place, Regent Street,
Sept. 15, 1840.

STATEMENT OF THE CASE
OF
ALEXANDER M'LACHLAN SMITH,
ACQUITTED OF A
CHARGE OF MURDER AT THE LATE YORK ASSIZES;
With Observations on the Plea of Insanity in Criminal Cases.

By Caleb Williams,
Surgeon to the Retreat, near York.

[*For the Medical Gazette.*]

The trial of Edward Oxford for attempting to shoot the Queen, and the recent acquittal on the ground of insanity, at the York Assizes, of Alexander M'Lachlan Smith, charged with the murder of a policeman at Huddersfield, have given rise to many remarks on the responsibility of lunatics, and fears have been expressed in many quarters as to the danger of readily admitting the plea of insanity where individuals are convicted of atrocious crimes.

The branch of legal medicine which relates to the question of insanity is assuredly of great interest and paramount importance, both to the individuals implicated in the inquiry, and to the community at large; and whether it affects the custody of the person, the care of the estate, or the graver question of the responsibility of individuals accused of criminal acts, the decision in each particular instance demands the most serious and attentive consideration. With regard to the responsibility of lunatics, it has always been acknowledged in general terms, that insane persons are not accountable for their actions, and that in acquitting them of crimes with which they might be charged, the community very properly are satisfied with requiring that they should be kept in safe custody, to prevent a repetition of similar offences.

In order to substantiate the plea of insanity under these circumstances, it has been rightly held that it should be shewn that the commission of the crime resulted from the delusion, or particular form of insanity, under which the individual laboured at the time of its perpetration. In the case of Alex. Smith it will be seen, by an examination of the evidence adduced on the trial, and by other facts connected with his history, that the crime with which he was charged naturally resulted from the circumstances in which he was placed in connexion with his peculiar physical condition.

The difference of opinion which at present obtains on the subject, renders it very desirable that cases of this description, which have been the subject of legal investigation and decision, should be fairly laid before the public, more especially with reference to the members of the legal and medical professions, to whom the community are accustomed to look for opinions and decisions in cases of real or supposed insanity. The consideration and discussion to which the statement of such cases gives rise, is likely to lead to greater precision in the determination of questions, often involved and ambiguous, and yet affecting most seriously the right of individuals to property, liberty, and life itself. Justice demands that the grounds on which insanity is admitted as a plea of exculpation from punishment, or as a ground of exclusion from social rights, should be as uniform as possible.

Under these impressions, and having been called to give my opinion as to the sanity of Alexander Smith, at the late Assizes, I have drawn up the following statement of the facts of the case, and of the grounds on which my judgment was formed.

Alex. M. Smith is a short athletic man, with light red hair, of the choleric temperament, 37 years of age. He states that he has been the subject of epileptic fits upwards of sixteen years. It is ascertained that, when he resided in Stirling, he had very frequent paroxysms; and he is described by persons who had repeated opportunities of witnessing these fits as being violent and furious in his conduct, both when they were coming on, and when they were going off. In the state of excitement preceding the epileptic paroxysm he has without any provocation, and while surrounded by other persons, attempted to cut the throat of his master; and he has in the most savage manner seized his wife by the throat, so that "she could hardly disengage his gripe." It was not unusual for him, when the fit was coming on, to take off his clothes and attempt to run naked into the street; or if he had been taken with a fit in the street, to strip himself naked on the spot, if not prevented. It is also stated that, "when recovering from the fits, he was very violent, and given to strike every one about him, especially if they tried to keep him from running into the street, which at such times he always wished to do.'' One individual who lived near Smith says, that "about twelve years ago he was called in by the neighbours to assist in keeping him down in bed, where he was lying, furious, kicking at, and trying to hit those about him, and this continued a long time." His wife states, "that, in general, after a fit, till he got sleep, he was like one out of his mind, and regardless what he did." He acknowledges himself that, prior to his having fits, he was in the habit of drinking whiskey to excess; but that since he had been so affected, he has not allowed himself to indulge in intoxicating liquors, on account of the great excitement they produced; and the parties who knew him between four or five years ago describe him as a sober man.

When he first came to England is not known; but early in the summer of 1839 he is found at a lodging-house for labourers at Elland, near Huddersfield, where he has frequent attacks of epilepsy—sometimes four or five fits in one day, and frequently three or four in as many successive days: the interval was sometimes a fortnight, and at no time exceeded a month. After these attacks he is described as being very outrageous in his conduct, and "awkward to manage," so that the lodging-house keeper was obliged to take great care "not to vex him." The lodging-house keeper distinctly stated, in his evidence on the trial, that "but for the lodgers he could not have managed him;" and even with their help he was sometimes indebted to his neighbours for assistance. "The lodgers were also careful to avoid any thing that put him out; they thought him not right in his head." When he first went out into the village after these attacks, his wild appearance attracted the attention of the children; and his irascibility and tendency to violence at all times being known, he was teazed and called by a nick-name, (Alick Gingerboy), which contributed to increase his irritation; and in this excited state he has run after them with an open knife in his hand, when oftentimes it was with great difficulty the children of the neighbours escaped from him unhurt. During his stay at this lodging-house, and within a few months of his stabbing the police officer, he was twice under medical care for inflammatory affections of the brain, marked by very violent conduct, incoherent language, and sleeplessness, in addition to the other ordinary symptoms of such diseases. One of these attacks occurred without any epileptic fits. On these occasions he was treated by general and local bleedings, blisters, setons, &c. &c. with temporary relief; and in the book kept by the surgeon of the Union for that district, he was returned as labouring under "temporary insanity." When he left these lodgings on the Friday preceding the day (Tuesday) of the fatal affray at Huddersfield, he is described by one of the witnesses as being "very cross and rough," doubling his fist in the face of the lodging-house keeper, and making such a noise as drew the neighbours to the spot, where their presence had become needful for the old man's safety.

The evidence of the keeper of the lodging-house to which he then removed, and where he passed the three days and nights, previous to his going to Huddersfield, is precisely similar:—"He was in a very cruel state, that is, he was raving; he said he would pull us to pieces, cut us up and draw us limb from limb." This person also states that he believes the prisoner did not know what he was doing during the three days he lodged at his house; that on the Tuesday morning, when he left the house, "he looked very wild with his eyes, and that both he and his wife were quite frightened of him."

He is next found in the market-place at Huddersfield, where his excited state (increased no doubt by some intoxicating liquor given him by an old acquaintance) attracts attention, and is mistaken, by one of the witnesses, for an indication of intelligence; which his ordinary appearance certainly does not exhibit. This witness says, "there was something about his bold uncompromising manner that struck me." Here, without a farthing in his pocket, he attempts to bargain for the whole of the plants on the stall of a market gardener:—he then singles out a particular plant, and offers twopence for it, notwithstanding the gardener had told him the price of it was one shilling and sixpence: he, nevertheless, assumes the plant to be his, and seizes hold of it. While he and the gardener are disputing, a police-officer comes up, and desires Smith to give up the plant to the gardener; and on his refusal to do so he is taken into custody, and conducted, with the assistance of the gardener, to the lock-up. Already in a state of great excitement, he becomes exceedingly irritated by the interference of the police officer, and still more so by the means used to take the plant from him; the policeman having struck him a violent blow on the knuckles with his staff, while the gardener (with whom he had the original dispute) was striving to wrest the plant from his grasp. In this furious state a chain is put upon him, and he is placed in the cell, where he evinces maniacal rage by talking in a most incoherent manner, making a great noise, and kicking at the door. After he had been in the cell about two hours, the police-officers go to him again; and as soon as the door is opened, he rushes out, and with his gardening knife (which had escaped the search previously made of his person) stabs the officer who had struck him with his staff. This man is mortally wounded and falls: another officer comes to his assistance, and Smith stabs him also, and cuts him in several places. Smith exults in having "done for two" of the policemen; and, swearing at another, says "he will do for him yet." After the knife had been taken from him, and he had been secured, he again says, "I have done for two of the b——s, and adds, "I'll do for other fifty; then England will be free."

During the night he is heard singing: the next day before the coroner he is unmoved, and even light in his behaviour: on his way to York at one time he is "very cheerful, and converses with the police officer, who had him in charge, about horticulture," "not at all impressed with the horror of the deed he had done;" at another he is sullen, and refuses to speak; and, on one occasion, he is very violent. Whilst he is in York Castle, notwithstanding the prison diet and the medical discipline to which he is subjected, he has returns of the epilepsy, and frequently quarrels with his fellow prisoners.

At an interview which I had with him a few days before his trial, when he was reminded of the crime with which he was charged, and that if convicted he must suffer the extreme sentence of the law, he neither appeared to feel any regret for what he had done, nor did he express the least alarm or apprehension regarding the result of the trial. This indifference was accounted for by his subsequent statement that since he had been in prison he had had communications from Jesus Christ, one of which was made by means of *two notes applied to his breast*; and that these communications from his Saviour had made him comfortable, and set his mind at ease, so that "he considered himself safe, let whatever would happen." He also entered into a wild and incoherent account of his views regarding the miraculous conception of Jesus Christ, the nature of the new birth, &c. &c.

During this conversation with Smith, it was evident to me that he has a very imperfect recollection of what takes place whilst he is in the state of excitement which either precedes or follows the fits; and in several instances it appears, from incidents of his history, that his most outrageous attacks and assaults upon those about him are afterwards entirely forgotten.

It should not be omitted that a respectable chemist and druggist, of Elland, to whose shop Smith resorted for medicines to allay his nervous feelings, gave it in evidence, that having had very frequent opportunities of observing that peculiar and violent conduct of Smith, he was fully convinced that he was of unsound mind; and so settled was the conviction in the mind of this individual, that it was to his exertions that Smith was indebted for the inquiry into his case, and the defence which was in consequence set up.

From this sketch of the history of Smith, it appears—

1st. That during the last sixteen years he has been subject to frequent attacks of epilepsy.

2ndly. That a few months prior to the affray at Huddersfield, he had been twice under medical care for inflammatory affection of the brain, and had been reported to the Poor Law Union as labouring under "temporary insanity."

3rdly. That his violent conduct and incoherent language, which preceded and followed the epileptic fits, had given rise to the belief in the minds of those who had the most frequent opportunities of observing him, that at those times, at least, he was not in his right mind, and did not know what he did.

4thly. That there was a continued state of morbid irritability of the brain, which rendered him peculiarly irascible and violent when any real or imaginary insult was offered him: this state of irascibility and violence quickly passed into uncontrollable fury, and a disposition to gratify the most implacable revenge.

5thly. That the repeated attacks of epilepsy, and the recurrence of an inflammatory condition of the brain, had impaired his understanding, weakened his judgment, and perverted his affections or moral feelings. Hence his delusions regarding the communications from Jesus Christ, and his indifference with regard to the crime with which he was charged, and the punishment which probably awaited him.

And, 6thly. That on many occasions, and particularly at any time during the days previous to the affray, at Huddersfield, any competent medical practitioner who should have examined him, would, without hesitation, have certified him to be insane, and a proper object for confinement in a house appropriated to lunatics. It is well known that persons of his description are to be seen in almost every such establishment. They are there employed in various ways, according to their previous habits and occupations. Whilst they continue calm and tranquil, they are often clever and industrious; but their liability to become violent and furious on any slight occasion, renders them unfit to be at large. To casual visitors, and under ordinary circumstances, they present no trace of mental infirmity; but if any thing occurs to offend or irritate them, their appearance is at once and altogether changed, and they are seen to be the subjects of an overwhelming influence, impelling them to acts of ungovernable fury.

It will be admitted that to those unaccustomed to the consideration of these subjects, the case of Smith may appear to be one of those instances in which it is difficult to discriminate between the manifestations of insanity and acts of a truly sane nature; and the more so, as the homicidal act did not arise out of any illusion or hallucination, but appeared to be prompted by the natural passion of revenge in a man of violent temper. When, however, we find the most judicious medical writers, of this and other countries, and those who have enjoyed the most extensive opportunities of observation,* concurring in the opinion, that where epilepsy has existed it affords a strong presumption of insanity, and that "a very large proportion of epileptics are particularly subject to violent agitations of passion; that they are rendered by their physical state morbidly irascible, impetuous, and incapable of restraining the sudden expression and gratification of their desires;" and when it is borne in mind, that Smith's ordinary conduct had for many years exhibited this morbid irritability of brain, we are irresistibly led to the conviction, that the homicide act of *such* an individual ought not to be confounded under the same denomination, and subjected to the same penalty, with the crime of him who, calmly and deliberately, waits until his victim has fallen asleep, and then cuts his throat, for the purpose of concealing his own dishonesty, or even of him whose more hasty and less deliberate commission of murder is the result of unbridled passion, and of habitually indulged evil propensities—*not* of a diseased condition of the brain, a calamitous visitation, emphatically termed by the lawyers, "the act of God."

The notice of this very important and interesting medico-legal case, would be incomplete without a record of the doctrine laid down by the learned judge (Baron Rolfe), on the subject of the criminal responsibility of lunatics. In his charge to the jury, he stated that if it was proved that at the moment of the homicidal act the prisoner was impelled to its commission by "a phrenzy, or uncontrollable fury, such as had been spoken to by some of the witnesses," the plea of insanity would be equally maintained as if proof had been given of his labouring under actual delusion.

A CASE OF SPINAL DISEASE,

IN WHICH HICCOUGH, BEING ONE OF THE MOST DISTRESSING SYMPTOMS, WAS COMPLETELY REMOVED BY INSERTING A SETON OVER THE ORIGIN OF THE PHRENIC NERVES.

To the Editor of the Medical Gazette.

Sir,

If you consider the following hasty description of this very interesting case worthy a place in the pages of your widely circulated journal, you will oblige me by inserting it.

I am, sir,
Your most obedient servant,
J. Watmough, M.D.

Pocklington, Yorkshire,
Sept. 9, 1840.

Miss H. last October, whilst dressing a sore on the hand of a poor woman, was suddenly seized with syncope, which caused her to fall on the rugged floor of a cottage: a slight convulsion followed, described by the attendants as lasting for three or four minutes. On coming to herself, she complained of pain in the back, with numbness of the legs.

Two days after, I found her labouring under severe pain in the inferior dorsal and super-lumbar vertebræ, with headache, and loss of sensation and motion in the lower extremities. Leeches, bleeding from the arm, with small doses of calomel, and counter-irritation on the spine, were the means used. She cannot now, eight days from the first seizure, be moved from the horizontal position; bowels are regulated by purgatives; and slight incontinence of urine relieved by tinct. lyttæ.

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* Esquirol, Georget, Prichard, Conolly, &c. &c.

Three weeks have now elapsed since she was first attacked. Singultus, which has occurred frequently, now becoming severe, cupping, leeching, blistering, with four caustic issues on the spine, were now had recourse to, together with the internal and external use of preparations of iodine, small doses of strychnia, &c. Notwithstanding, six months passed away without much alleviation of symptoms: singultus became intolerable, threatening to prove fatal rapidly. I inserted a seton over the origin of the phrenic nerves, and eight days after, these formidable symptoms ceased, sense of feeling and power of motion were restored to the legs, and, by the use of the inclined plane, with tonics, &c. my patient gradually progressed to sound health, and is now able to walk well, and travel considerable distances.

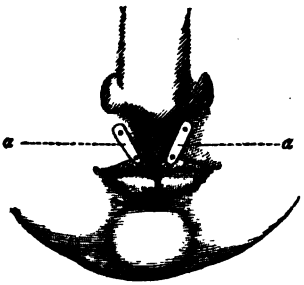
OPERATION FOR HARE-LIP.

To the Editor of the Medical Gazette.

Sir,

I beg to communicate through the medium of your journal a method of operating which I employed in a case of double hare-lip with perfect success, and which appears to me more simple, less liable to failure, and less painful both at the time and afterwards, than the common operation with hare-lip needles.

For this operation two thin plates of silver, either circular, with a small hole in the centre of each, or oblong, with two holes, or otherwise modified, according to the form of the parts to be united, are required. One of these plates is threaded by a fine three-sided needle, armed with a double ligature, knotted at the end so as to check against the hole in the plate; and, the edges of the lip having been previously pared, the needle is passed as in the usual operation, but drawn completely through with the ligature, until the knotted extremity of the latter brings up the plate firmly against the lip. The other plate is then threaded on the ligature, and slipped down to the lip on the opposite side, so as to bring the parts into proper apposition. The ligature is then divided so as to leave ends sufficiently long, which are tied down against the aperture in the second plate.



(*a a*) silver plates, with the ligatures secured so as to bring the included parts into proper apposition.

Thus a ligature, or two ligatures, secured at each extremity by a plate of silver, are substitutes for the hare-lip needles and twisted suture: the traction and pressure exerted by this means act in a more favourable direction, and the parts included are less liable to cut out than by the common method, besides which the usual dressings and auxiliary supports are more easily and more effectually applied.—I am, sir,

Your obedient servant,

Alfred J. Wood.

Surgeon, Gloucester Infirmary.

3, Barton Street, Sept. 12, 1840.

ANALYSES and NOTICES of BOOKS.

"L'Auteur se tue à allonger ce que le lecteur se tue à abréger."—D'Alembert.

A System of Practical Medicine comprised in a series of Original Dissertations. Arranged and edited by Alexander Tweedie, M.D. F.R.S. &c. London, 1840. 5 vols. post 8vo. pp. 1885.

The work now before us forms the first portion of the Library of Medicine.

The first volume contains an introduction by Dr. Symonds; a treatise on inflammation, by Dr. Alison; essays on the general doctrines of fever, on continued, and on hectic fever, by Dr. Christison; on the plague, on intermittent, remittent, and yellow fever, by Dr. Shapter; on infantile gastric remittent fever, and on puerperal fevers, by Dr. Locock; on small-pox, by Dr. Gregory; on measles and scarlet fever, by Dr. George Burrows; and on diseases of the skin, by Dr. H. E. Schedel, of Paris.

The second volume is on diseases of the nervous system, and the essays in it are written by Drs. Bennett, Hope, Prichard, and Theophilus Thomson.

The third volume opens with the diseases of the organs of circulation; all the essays on this subject being by Dr. Williams, with the exception of one on influenza by Dr. Theoph. Thomson, and one on asphyxia by Dr. Carpenter. The rest of the volume is occupied with a number of essays on the diseases of the organs of circulation, by Dr. Joy.

The fourth volume opens with the remainder of the essays on the diseases of the organs of circulation, by Dr. Joy. We then arrive at treatises on diseases of the digestive organs by Drs. Symonds and Dr. Thomson; on diseases of the spleen by the latter physician; on diseases of the urinary organs by Dr. Christison; and on those of the uterus and ovaria by Drs. Ferguson and Simpson.

The fifth volume contains treatises on the general doctrine of hæmorrhage and on its varieties, by Dr. George Burrows; on scurvy by Dr. Budd; on the general doctrine of dropsy and on its varieties by Dr. Watson; on scrofula by Dr. Shapter; on bronchocele by Dr. Rowland; on rheumatism and gout by Dr. Wm. Budd; on worms by Dr. Arthur Farre; and a formulary, containing remarks on the art of prescribing, together with classed prescriptions, by Dr. Joy.

Dr. Christison's essay on continued fever has the clearness and precision which distinguish all his writings. The points of which he treats are the "symptoms of continued fever.—Secondary affections.—
Affections of the head—o
—of the chest—of the
the skin.—Sequelæ.—
tial rheumatism and n
tial palsy.—Œdema.—
flammations.—Superv
sis pulmonalis.—M
duration, and mortality.—Anatomical characters.—Causes.—Prognosis.—Treatment.—Prophylaxis."

Dr. Christison defines continued fever in nearly the same terms which Cullen applies to fever generally. "It is a disease in which after a precursory stage of languor, weakness, and defective appetite, acceleration of the pulse takes place, with increased heat, great debility of the limbs, and disturbance of the functions, without primary local disorder, and without well-marked remissions." (Vol. i. p.125.) These characters are not invariable; sometimes, for instance, the pulse does not rise beyond seventy; and a man in the incipient stage of fever has been known to walk forty-five miles within as many hours; but general disturbance of the functions is less variable than any other of the characters.

It has become fashionable of late, says our author, to deny the existence of synocha, or inflammatory fever, in this country, and to suppose that ephemeral fever is the only example of it in temperate climates. In the Edinburgh epidemic, however, of 1817-20, it was very common; and Dr. Christison found that for some time it formed between a fifth and a sixth of the cases in the Infirmary and Fever Hospital. In some of these instances the fever had complications, but the disease was altogether divested of the typhoid character. Some of the symptoms of synocha mentioned by our author are, the increased temperature of the patient, raising the thermometer to 102, 104, and sometimes 107 degrees; the florid colour of the blood, which is occasionally so bright that the surgeon imagines he has opened an artery instead of a vein; and an extreme irritability of the senses of sight and hearing.

Dr. Christison believes, as we do, in the existence of idiopathic fever, but allows that complicated cases are more common. Among the local disorders which may occur incidentally during the course of fever, he mentions affections of the head—such as congestion on the brain or its membranes, meningitis, and a convulsive affection allied to
pilepsy; affections of the throat, for
nanche tonsillaris, aph-
n of the throat and
nche parotidea; affec-
st, namely, catarrh,
leurisy; and various

affections of the abdomen; among others an obscure disorder of the stomach allied to gastritis. This disorder is supposed in France to depend on inflammation of the stomach; but Dr. Christison, with more probability, believes it to arise from mere irritation, connected with a congested state of the organ, or from functional disturbance caused by a depression of the powers of the brain. Broussais supposed that it was a true inflammation, and that, in combination with a similar disease of the intestines, it was the essential cause of all continued fevers.

Dothinteritis, again, was supposed by M. Louis to be the local cause of some typhus fever. This name, which was first proposed by Bretonneau, is derived from δοθιὴν, a pimple, and ἔντερον, the intestine, and is intended to signify an inflammation of the glands of Peyer and Brunner. In Britain it occurs only occasionally during epidemic typhus. Petechiæ are so common in some epidemics, that it is rare to find a case without them; but there is no ground for the assertion, that in true typhus, petechiæ are never entirely wanting.

In the section on the prevalence, duration, and mortality of fever, Dr. Christison shows how numerous the cases have been of late years in Edinburgh and Glasgow. "In Edinburgh, for example, during four severe epidemic visitations since 1816, each lasting between three and four years, the number of beds constantly occupied in the hospitals has varied from 120 to 150; and for some time past (Jan. 1839) the latter number has been often insufficient to meet the demands for admission." (p. 147.)

In 1837, the mere hospital admissions of fever cases in Glasgow amounted to 5387! Of the cause of this frighful prevalence of fever, and of its remedy, we have treated on former occasions.

Dr. Christison believes fever to be infectious, and has certainly brought forward very strong instances in favour of his position. Take a couple of samples. "*In Edinburgh not a single nurse escapes who remains long enough at her post.* * * * * * Of fifteen gentlemen, who held between 1817 and 1820 the offices of house-surgeon or resident clerk, in the Edinburgh Infirmary and Fever Hospital, two only escaped an attack; and during seventeen months of the period, when the epidemic was at its height, there occurred sixteen cases of fever among ten of these, of whom five had it once, four twice, and one thrice." (p. 157.)

Dr. Christison's account of the treatment shows great candour and good sense; he discusses the effects of local and general blood-letting, emetics, cathartics, and the cold affusion, with remarkable impartiality, and his observations cannot be read without profit.

The Formulary with which Dr. Joy has concluded this division of the Library will prove eminently useful to young practitioners. Among the errors most apt to occur in extemporaneous prescriptions he enumerates, 1. the "ordering substances to be combined, which are by their nature incapable of uniting," as for instance, oil in a decoction, without any mucilage, yolk of egg or alkali.

2. "Prescribing a particular form for the compound, which its ingredients, when brought in contact, are incapable of assuming or preserving;" such as ordering sulphate of soda and carbonate of potash to be rubbed into a powder; for they become fluid when mixed.

3. Prescribing doses too large, or powders too irritating, to be conveniently taken.

4. Prescribing incompatible substances, such as sulphate of iron, nitrate of silver, in astringent infusions or decoctions; or large quantities of Goulard water in mucilaginous lotions.

5. Directing a mode of preparing the ingredients which is injurious to their qualities, or lessens their power. Thus senna has its griping tendency increased by long boiling. Under this head comes the selection of an inappropriate menstruum, such as an alcoholic one for a solution of gummy matter.

5. "Omitting the proper directions for the preparation or use of a medicine."

In the section on doses, Dr. Joy gives Gaubius's table, and Dr. Young's formula, which we agree with him in preferring: "the doses of most medicines for children under twelve years of age must be diminished in the proportion of the age to the age increased by 12; thus, for example, at two years,

$$\frac{2}{2+12} = \frac{1"}{7}.$$

The formulæ themselves are divided under eighteen heads, such as stimulants, narcotics, antispasmodics, tonics, astringents, diaphoretics, expectorants, emetics, cathartics, &c. Among the stimulants we find arnica: we subjoin the formula, as the remedy, though of considerable repute on the continent, is not in our British Pharmacopœias.

> "℞. Arnicæ Mont. Flor. ʒj. Aquæ ferv. Oj. Stet per Semihoram. Cola. Sumat cochl. ij.—iij. ampla ter die. (In paralysis, chronic rheumatism, dysentery. Its use requires caution.") Vol. V. p. 283.

In some cases the author recommends Dr. Law's method of prescribing calomel, in the dose of a twelfth of a grain every hour, with extract of gentian. He says it will often salivate very rapidly.

On the whole, the System of Practical Medicine does credit to the tact with which the able editor has selected his contributors, as well as to the practical knowledge they have shewn of their respective subjects. The book is closely printed with a small type, so that it contains a vast mass of information within its nineteen hundred pages.

We give especial praise to Dr. Tweedie for the rapidity with which he has brought out these five volumes. They are to be followed by other series on practical surgery, on physiology, on midwifery, &c. The series already completed would be an excellent present for a young practitioner going to the colonies.

MEDICAL GAZETTE.

Friday, *September* 25, 1840.

> "Licet omnibus, licet etiam mihi, dignitatem *Artis Medicæ* tueri; potestas modo veniendi in publicum sit, dicendi periculum non recuso."
>
> CICERO.

ADVICE TO PUPILS.

FEW parts of our office are so agreeable as that of giving advice to pupils concerning the best method of studying the medical profession in London. We feel assured that, among the multitude who read our hints, there are many who will read them with profit; while there is scarcely any class of persons so much in want of counsel.

The student fresh from the country, living in London with little superintendence, and disappearing, as it were, amid the throng of the greatest city in the world, is in danger of sinking into vulgar dissipation. Should his principles save him from this calamity, he may yield to the seductions of indolence, acquire mere fragments of information, and content himself with certificates instead of knowledge. Or, should he be of a higher stamp, he may fall into the more respectable mistake of studying the ancillary sciences to the exclusion of medicine itself, and thus becoming qualified rather to supply materials for the practical, than himself to practise.

We will, therefore, suppose a student just launched upon London, with no friends capable of supplying the counsel which he needs; and while we touch upon a few points connected with his professional progress, however homely and prosaic some of them may seem, we trust that those who do not stand in need of the advice will not only excuse but praise us.

Among schools, it is safest to select one whose merits are attested by its duration, as well as by the general voice of the profession. At any rate, we would say to our young friend, avoid those schools whose attractions consist almost solely in the lowness of the fees. The frequency with which the lecturers are changed in such establishments shows that, happily, the system does not take; and if such institutions spring up with alarming rapidity, it must be owned that they disappear fast enough also—"come like shadows, so depart."

It is desirable that the pupil's lodging should be near the hospital which he attends. This is especially necessary for the student who distrusts the intensity of his own industry, and who is conscious that he might be detained from the scene of his labours, if distant, by bad weather, or other slight causes. For he must recollect, that if he wishes to learn the most difficult of arts, if he desires to practise physic as an honest man, the hospital must be the constant arena of his labours, as soon as his preliminary studies have qualified him to understand what he sees there. If he could find some fellow-lodger of the right stamp, a fellow-labourer for distinction, with whom to read, to reason, to dissect, to visit cases, his toil would be more delightful, and his progress more rapid; but such a chum is not found at the first call, and it is not a mere fellow-smoker that we recommend.

We sometimes hear of families where the master is a practitioner of physic, and is willing to receive students as boarders, and assist them in their medical studies. When such a port of refuge is to be found, not merely in a column of advertisements, but in absolute reality —when the head of the family is conspicuous for professional and moral character, while the readiness with which he acquires knowledge is to be surpassed only by the ardour with which he imparts it—the golden opportunity is not to be neglected.

We will suppose that the student intends to present himself at Apothecaries' Hall as a candidate for a license to practise. In this case, during his first winter session, he must attend lectures on four subjects, namely, chemistry, anatomy and physiology, anatomical demonstrations, materia medica and therapeutics. It would be highly desirable that the studies which the Court of Examiners have distributed over two years and a half should be extended through a longer period; especially when we consider that many students profess to attend at the same time the additional lectures required by the College of Surgeons. By the last regulations of the College, indeed, the time of actual study has been extended to four years*, but it is not stated when the alteration takes place; but passing over this point, and supposing for a moment that the student is preparing himself for the Hall alone, he will attend three or four lectures a day. To this we must add reading and private study, without which lectures lose half their efficacy. The sum total might not be too much for a man of cultivated mind, habituated to severe study, and eager for a great object; but when we consider that too many pupils have passed their previous years of apprenticeship with so little profit, that they cannot explain the common terms of their art, nor recognize its tools when set before them, we must acknowledge that a potent struggle is required to conquer long habits of inactivity, and fertilize a fallow mind. But the struggle must be made, and every student who shrinks from the thought of defrauding the public of their money by homicidal practice, *will* make it. The first step is to observe the maxim *nulla dies sine lineâ;* let no day pass without some visible progress. Do not say "such or such a thing is so dry; I can't set about it to-day; tomorrow or Monday will do very well."

> Incipe: vivendi rectè qui prorogat horam,
> Rusticus expectat dum defluat amnis; at ille
> Labitur et labetur in omne volubilis ævum.

The great object of the diligent student, during his first session, will be to acquire a sound knowledge of anatomy. Haller says this requires twenty years; but we would not have our friend despair; he will find that the hearty efforts of six months, though they have not brought him up to the standard of the German physiologist, have cleared away the first and greatest difficulties; and that the science on which he has toiled is "not harsh and crabbed, as dull fools suppose," but a perpetual fountain of knowledge and gratification. Though he will not formally dissect this session, he will probably have opportunities in the dissecting-room of trying his yet unskilled hand in the unravelment of the human frame. Nor do we see why he should not dissect a little this winter, though it may not count in his certificates. If not written on that folio sheet, it will be imprinted on his brain, and expressed in his conversation. It would be ludicrous, if it were not melancholy, to see the constant irrecognition of the simple truth, that these formal certificates are but one way of bearing witness to a man's studies; and that every one habitually testifies the amount of his own acquirements by his ordinary talk, as well as by his more elaborate essays. To make preparations is an admirable method of stamping anatomical facts upon the mind, while the result will afterwards revive recollections which time has begun to dim.

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* Candidates are required to bring proof "of having been engaged in the acquirement of professional knowledge during a period of not less than four years, six months of which shall have been occupied in the study of practical pharmacy, six months by attendance on the practice of physic, and the remainder of the period on the practice of surgery, at a recognised hospital or hospitals in the United Kingdom: three months being allowed for a vacation in each year."

Materia medica and therapeutics form another great and interesting branch of study. We so lately touched upon the subject, when we directed attention to the prizes founded for its encouragement*, that we do not deem it necessary to dilate upon it now. We will only suggest that it would be well if pupils supplied themselves with specimens of the more important drugs, as a stimulus and assistance to their studies. Every one knows the difference between merely talking and reading about a subject, and actually having it before one's eyes.

Chemistry is one of the most delightful of the sciences; and were the period of medical study considerably increased, might justly claim a large portion of attention. But the student who is absolutely limited to thirty months' attendance on lectures and hospitals, must stick to the practical with unremitting tenacity. He must master the elements of chemistry, but can hardly aspire to that apprenticeship in the laboratory which would form part of a complete medical education.

When attending lectures, the pupil will take short notes only, for the attempt to set down all that he hears, converts the auditor into a machine, and renders him unable to grasp the whole subject of an hour's discourse; but the notes should be written out at home more at length, and compared with the best authors on the same topics.

During the first summer session no attendance on lectures is absolutely required; botany, indeed, is mentioned, but the student may postpone it, if he pleases, to the second summer. We should advise him to take it during the first one, as the second will be better employed in recapitulating some of the more important subjects. We would not counsel this, however, if it obliges the student to remain in London; but if a recognized lecturer on botany is to be found near his habitual residence, we suppose it would be in accordance with the regulations to attend these lectures in the country; but on this point we speak with diffidence. If the case should be otherwise, it would be better to postpone botany to the second summer, when forensic medicine is to be studied.

During the first summer session, the pupil is recommended by the Court of Examiners to attend to "such other branches of study as may improve the student's general education." As they recommend in their preliminary remarks that the pupil, previously to his apprenticeship, should "have received a sound classical education, have been instructed in the elements of mathematics, and natural philosophy, and have acquired a knowledge of the French, and, if possible, of the German language," they probably refer to these acquirements. Since the first vacation lasts five months (if botany is postponed) a good deal may be done in it; but as Apollo does not always bend his bow, neither should the medical student, and we must, therefore, allow a certain time for recreation. Hence it will perhaps be sufficient for the majority, if we suggest a considerable improvement in French and Latin as the fruits of their summer holidays. The latter accomplishment is so much neglected by students, that in one year, out of 106 rejections at the Hall, 36 were purely through ignorance of Latin*; not from the extreme severity of the examination, but from the remarkable incompetency of the candidates.

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* Med. Gaz. Sept. 11, 1840.

We will not, on the present occasion, comment on the studies of the remaining years, but we will conclude with a hint or two of a different kind. Let the young student beware alike of the riotous profligate, of the cold sneerer, and of the habitually discontented man; it is not from such that lessons of wisdom, or the art of happiness, are to be learned. Let him recollect that to cure disease is only a part of the general problem of mitigating pain; and that he whose temper and behaviour are a constant source of suffer- to those around him, counteracts his own medical skill, and is but half a physician.

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* Med. Gaz. Vol. xx. p. 696.

MEETING OF THE NORTH OF ENGLAND MEDICAL ASSOCIATION.

The second general meeting of the North of England Medical Association was held at Carlisle on Tuesday, the 15th inst. Dr. Headlam, the president of the society, was in the chair. The topic of the day was medical reform. The proceedings were opened by a speech from the president; and this was followed by the Report of the Council, which was read by Mr. C. T. Carter, the Hon. Secretary. The meeting was next addressed by Dr. Barnes, Mr. Morrison, Sir John Fife, Dr. Knott, &c. Dr. Elliot then read a paper "On Scientific Medicine, and its Relations to, and claims upon Society at large."

Dr. Elliot's address is to be printed and published; and the annual subscription to the association is to be reduced from a pound to ten shillings, as the society now numbers 160 members. Thanks were voted to the president.

"The meeting," says the reporter in the Gateshead Observer, "was then dissolved, and several of the medical gentlemen present proceeded to the Bush Inn, where dinner had been provided for their entertainment. Dr. Headlam presided; and we need hardly say, that the short time which remained, prior to the starting of the 'train,' was pleasantly occupied. At 5 o'clock, the medical visitors of the 'merrie citie,' and the writer of this notice of the day's proceedings, were on 'the rail,' and swiftly journeying back to their 'canny' quarters in the east; and ere the evening was far advanced, they were snugly ensconced in their respective homes, and luxuriating over a comfortable cup of tea; having travelled 120 miles between nine in the morning and eight at night, and spent five hours out of the eleven in Carlisle."

ASSOCIATION OF PHYSICIANS, DUBLIN.

September 7, 1840.

The President, Dr. Collins, *in the Chair*.

Dr. Lendrick read the following paper:—

There is always particular interest excited by those diseases that are attended by change of structure, and effects cognizable by the senses of sight and touch. Yet, as far as *medical* disease is concerned, this is precisely the class of maladies which, in general, are least amenable to treatment. It is therefore gratifying to come occasionally across cases that both present the strong distinctive marks of organic disease, and also are capable of cure or alleviation.

Such was the one which I am now about to submit to the notice of the Association. A child, three years old, was admitted into Mercer's Hospital, and put under my care, on the 22d of June, labouring under palpitation of the heart and difficulty of breathing. On inquiry it was ascertained that about three months previously she had been thrown down by a carriage, two of the wheels of which had passed over her body. A medical gentleman, who witnessed the accident, directed a stimulating draught, for the purpose merely of producing revival. From the nature of the injury, and the amount of collapse, he did not anticipate her recovery. Obstinate vomiting ensued, and lasted a considerable time; but the other urgent symptoms of distress became mitigated.

About a month afterwards she was attacked with dyspnœa. Several local applications were used, and she was at length brought to my friend and colleague Mr. Read, by whom she was sent to Mercer's Hospital, and placed under my care. It was his opinion that the heart was displaced, and in this conclusion I fully concurred, the pulsation being obvious, both to the sight and touch, on the right side of the chest, and imperceptible on the left. Mr. Mason, one of our pupils, who afterwards paid great attention to the progress of the case, observed that the chest was much more prominent on the left than on the right side, and more accurate examination showed an increase of dimension of about an inch. The child was unable to lie on the left side without a sense of impending suffocation, and screamed on the attempt being made.

The sound, on making percussion over the left side of the chest, was completely obtuse. Some degree, of what seemed to be bronchial respiration, was audible at the upper and posterior part of the lung, and, as might have been expected, the sounds were remarkably distinct on the opposite side.

There could be no doubt as to the nature of the case, and that fluid was largely effused into the left pleura. It was questionable, however, whether the obvious change in the position of the heart was referable to the pleuritic effusion solely, or might be attributed partly to the thorax having been crushed by the injury, to which all the symptoms were traceable. The weight of the carriage, and the flexible state of the bones and cartilages at so early a period of life, in some degree countenanced this opinion.

The general want of success attendant on the operation of *paracentesis thoracis* deterred me from having recourse to it on the present occasion, and Mr. Read fully concurred with me in opinion. The treatment consisted of four grains of calomel and one grain of digitalis, administered in divided doses daily, and a blister dressed with one of Albespiene's papers, applied to the left side of the chest.

A few nights afterwards, a round worm, about seven inches long, was passed from the bowels. On the 2d of July the preternatural action of the heart was diminished; the pulsation seemed to be an inch nearer the centre of the sternum, and the difficulty of lying on the left side was diminished. The usual respiratory sounds now became discernible over the left side of the thorax

About a week from the above date, the medicines were discontinued. At this time the heart had apparently resumed nearly its ordinary position; the usual sounds were heard over the chest; the morbid enlargement of the left side had disappeared, and the patient could lie with ease in any position.

On the 19th of July she left the hospital, seemingly quite recovered.

I have stated the facts of the case as they occurred. Of course, no importance can be attached to the evacuation of the worm, all the symptoms being obviously connected with a mechanical cause, the distension of the left pleura with fluid, and which seemed to be traceable to the injury inflicted by the carriage. Whether the displacement of the heart was solely dependent on the accumulation of fluid, or partly caused by the force of the injury, must be, as I have just remarked, doubtful. It would appear, however, that the pleuritic effusion was dependent on an inflammatory action, produced by the violence inflicted on the chest.

Under such circumstances the operation of tapping presents considerable inducements. The prompt removal of the fluid affords much temptation to having recourse to so simple a mode of effecting relief. I am, however, inclined to think that this very simplicity is an objection, and that when much sympathetic suffering is attendant upon the accumulation of a fluid, this circumstance ought to render us cautious of setting up in the constitution another disturbance, caused by the parts being made to assume suddenly the opposite state of vacuity. Inflammatory affections of serous cavities must for this reason be dealt very delicately with in the way of operation, which often substitutes an artificial state of disease worse than that under which the patient laboured. In the preceding case no attempt at an operation was made, and yet, under ordinary treatment, the symptoms subsided, the fluid disappeared, the heart regained its ordinary position, and recovery ensued.

Dr. Osborne produced two preparations of perforations connecting the œsophagus with the air-tubes of the lungs.

The first (of which a notice has already appeared in the *Dublin Medical Press*) was taken from a young man, who enjoyed good health till about four months previous to his death. At that time he was first observed to cough always after swallowing liquids. This increased so much that he was at length obliged to abstain entirely from drinking. On the morning of his death he was eating a breakfast of beefsteak, when he was seized with a fit of suffocation, and was brought to the hospital gasping for breath. A probang was passed with a view to remove the obstruction, but no improvement was obtained, and in a few minutes he died.

On examination after death nothing was found in the larynx or œsophagus to account for this sudden catastrophe, and the parts were on the point of being closed, when one of the assistants happening to put his finger down the œsophagus, felt something rough at the side of it, adjacent to the bifurcation of the trachea. This produced a further inquiry, and it was ascertained that a perforation had taken place exactly in the raphé above the bifurcation, that a portion of a piece of gristly beef had passed through it, which unfortunately for the patient had been divided into two portions, one of which had stopped up each of the bronchi, while it had been retained in its situation by a large portion connected with it, which remained in the œsophagus. The orifice through which it had passed was a longitudinal slit, which, when expanded, would form an opening equal to a fourpenny piece. There were no vestiges whatever of ulceration, or of any diseased process around the orifice; and Dr. Osborne stated his opinion to be, that this was a case of congenital defect resembling cleft palate; that owing to some accidental circumstance it had become enlarged four months ago; when swallowing fluids was followed by a cough, and the irritation attendant on their escape into the bronchial tubes; that the immediate cause of death was an irritation producing a necessity for coughing, unfortunately at the moment when the piece of beef had arrived opposite the orifice, when the unfortunate patient being obliged to make a sudden and forced inspiration preparatory to the cough, the beef was sucked into the trachea, and each lobe of it also sucked into a bronchial tube, which were thus as it were *corked up*. Perhaps there is not on record a more remarkable instance of loss of life from so singular a combination of circumstances: 1st, A perforation of the œsophagus penetrating the trachea just above the bifurcation; 2dly, The patient making a forced inspiration just at the moment when a piece of meat was in the act of passing the perforation; and 3rdly, The meat happening to be divided into three lobes, one stopping up each bronchial tube, while the third remained in the œsophagus, and thus maintained it in its position.

The second case was that of an individual who appeared to have possessed intellectual energies far above his station in life. He was a working shoemaker, and burthened with a family, but found time to combine the labours of authorship in various departments, with those of a political orator, and methodist preacher. About eleven months previous to his death he first experienced a difficulty in swallowing, which gradually became painful. When my patient was admitted into the hospital, he complained of lancinating pains in the œsophagus, even when not engaged in swallowing, which usually belong to the progress of scirrhous and cancerous disease in that part. The passage of the œsophagus tube, however, in the hands one of the ablest surgeons of this city, failed to detect any, even the slightest stricture. Under treatment the state of his stomach was much improved, but no improvement of deglutition obtained, and he went to the country. His condition did not become sensibly worse till about seven weeks before his death: then he was tormented with cough on every occasion of swallowing, or whenever he lay on the left side, and continued in this state of suffering till his death.

An opportunity of examining the body having been offered by the family, a very remarkable correspondence between the symptoms and the disease was brought to light. The greater part of the œsophagus was so much diseased that in the preparation it can scarcely be recognised. The ulcerations in several places formed large excavations in the mass of adjacent scirrhous structure. In the portion adjacent to the bronchial tube, a peculiarly large excavation has extended, engaging in it several of the bronchial glands, and here is an oval perforation with thin jagged edges, forming a direct communication between the œsophagus and air tube. The size of this being nearly one inch in length and half an inch in breadth, we can readily understand: 1st, How swallowing any thing solid or fluid produced coughing; and 2dly, How some degree of ease was obtained by lying on the right side. It is also to be observed, that although both lungs were healthy, yet that at the apex of the left lung a collection of miliary tubercles were in progress of formation; this being a result of the peculiar irritation to which that lung was exposed, analogous to the case described by Dupuytren, in which there were no tubercles in the body, except round a pin adherent in the lung.

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Both those cases illustrate a lesion which has not been described in any work that has come into my hands, and which must be of great rarity, since no preparation of it is in the museum of the College of Surgeons, or in that of any other collection respecting which I have made inquiries. Perhaps, however, it has not been sufficiently sought for, and the communication of those cases to the Association may be useful, if it excites attention to the subject. As perforations between adjacent mucous membranes in other parts are not unfrequent—witness those between the vagina and rectum, the colon and stomach—this occurrence between tubes so closely adherent as the œsophagus, and air-tubes may be *à priori* expected to take place, and the above cases shewing that it actually does take place, it is to be inferred that the absence of observations of a similar kind has arisen from its having escaped observation, in consequence of pathologists having not sufficiently searched for it.

HÆMORRHAGE FROM THE CONJUNCTIVA.

To the Editor of the Medical Gazette.

Sir,

The two cases of hæmorrhage from the conjunctiva, detailed in a recent number of the Medical Gazette, by Mr. Hocken, of Exeter, are curious and interesting. They appear, however, fortunately to have been slight and easily suppressed. My acquaintance with the records of medicine is too limited to enable me to say whether they contain many such cases; but in the course of my reading some years ago I observed one or two remarkable cases of bleeding from the eye, notes of which I will subjoin, and should you consider them deserving the notice of your readers, they are very much at your service. The first case in my note-book is from the works of *Forestus*. "Foresti opera omnia. fol. Frankfurt. an. 1634." Lib. ii. "De Morbis oculorum et palpebrarum."

Observatio xiii. "De Sanguine per tres fere Septimanas ex oculis lachrymarum instar copiose emanante et profluente."

"Lachrymas vero ab oculis profluere nihil novum est: at guttas sanguineas reddere, rarissimum: id tamen vidimus anno 1581, 23 Aprilis die, in vetula quadam annos 80 nata, quæ in parte orientali Delphio decumbebat, in domo cui flos calendulae pro insigni erat.

"Erat autem mulier procera et valde macilenta, cui et lachrymæ sanguineæ, imo sanguis, continuo fere per utrosque oculos fluxerant.

"Interrogavi quam diu hoc malo, nempe ictero laborasset, et sanguinem ex oculis profudisset; respondit, tres septimanas elapsas esse, quibus hoc colore totum corpus infectum fuerat; et statim ab eodem tempore satis continuo in hunc usque diem lachrymas sanguineas ex oculis emanasse referebat: Oculi tamen non dolebant, nisi quod mane ob sanguinem profusum difficulter aperirentur."

Forestus afterwards refers to a case given by Dodonæus, of a young girl aged 16, whose menses had not appeared, but in whom a vicarious discharge took place from the coats of the eyes:—"Sanguineis guttis lachrymarum instar frequenter ex oculis profluentibus."

The next case is from the Phil. Trans. No. 208, p. 51, An. 1694, being "part of a letter to Dr. Clopton Havers, F.R.S., giving an account of an extraordinary *hæmorhagia* at the glandula lachrymalis."

"Sir, since my coming to this place I have met with a very strange case. An icterical discontented woman having a desire to dye, wholly rejected the help of medicine, and within three months, being well nigh her end, there happened an eruption of blood out of the glandula lachrymalis of one of her eyes, without any external injury. There was an evacuation of lb.ii. of blood within the space of thirty hours. About a week after the same sluce was opened again, and she bled till she died. Now I would fain know what blood-vessels come to that gland from which such a vast quantity of blood should be cast forth in so short a time."—I remain, sir,

Your obedient servant,

Lector.

London, Sept. 9, 1840.

METEOROLOGICAL JOURNAL.

Kept at Edmonton, *Latitude* 51° 37' 32" *N.*
Longitude 0° 3' 51" W. *of Greenwich.*

Sept.	Thermometer		Barometer.	
Wednesday 16	from 40	to 53	28·83	to 29·08
Thursday . 17	44	60	29·42	29·63
Friday . . 18	31	58	29·78	29·82
Saturday . 19	48	56	29·84	29·90
Sunday . . 20	39	56	29·94	29·98
Monday . . 21	37	61	29·94	29·83
Tuesday . 22	50	55	29·50	29·48

Wind S.W. on the 16th and following day; N.W. on the 18th and following day; N.W. in the morning, and West in the afternoon of the 20th; West on the 21st, and S.W. on the 22d.

Rain fallen, ·48 of an inch.

Charles Henry Adams.

NOTICE.

We have received the communications of Dr. Franz, Mr. J. I. Adams, Mr. Hugh Carmichael, Mr. J. B. Gray, and Dr. Munk. We are much obliged to Mr. T. C. Carter for his attention.

Wilson & Ogilvy, 57, Skinner Street, London.

THE

LONDON MEDICAL GAZETTE,

BEING A

WEEKLY JOURNAL

OF

Medicine and the Collateral Sciences.

FRIDAY, OCTOBER 2, 1840.

LECTURES

ON THE

PRINCIPLES AND PRACTICE OF PHYSIC,

Delivered at King's College, London,

BY DR. WATSON.

LECTURE II.

Pathology — meaning of the term. Pathology, general and special. Morbid alterations of the solid parts of the body. Alterations in bulk. Hypertrophy,—law of its production—its effects. Atrophy—its causes and consequences. Changes in form. Alterations in consistence. Induration—its various kinds.

I PROPOSE to devote several lectures, in the commencement of the course, to pathology, as it relates to medicine.

And I must first of all explain to you what I mean by the word pathology.

Many persons speak of pathology as if it were the same thing with morbid analogy. That is not the sense in which I purpose to use the term. Pathology *is* morbid anatomy, but it is something more.

A knowledge of pathology (in the full and proper acceptation of the word) implies indeed a knowledge of altered structures and of diseased conditions;—but it implies also an explanation of these — a knowledge of what precedes them, and a knowledge of what results from them.

It comprehends therefore the following particulars:—1. A knowledge of the material changes to which the several parts of the living body are subject: 2. A knowledge of the processes or actions by which these changes may be wrought: 3. A knowledge of the causes which set these processes on foot; and 4. A knowledge of the consequences of the same changes, or of the symptoms they occasion.

On some of these points our actual knowledge is still scanty and imperfect. Yet a good deal of valuable information concerning each of them has been collected: and this I shall endeavour to place before you as distinctly, and at the same time in as small a compass, as I can.

Pathology is general, or special. General pathology treats of the morbid conditions which are common to the whole system, or to the several tissues that compose the system. Special pathology contemplates particular diseases. An acquaintance with general pathology prepares us for, and conducts to, that which is special; and when I say that the earlier lectures of the course will be given to a consideration of the facts and doctrines of pathology, you will of course understand me to speak of *general* pathology.

And I shall begin by inquiring what are the changes to which the component parts of the living frame are liable.

There are various ways, capable of intelligible description, in which the different parts of the body may be altered by disease.

The solid parts may be altered in *bulk*; in *form*; in *consistence*; in *their intimate texture*, i.e. in the qualities and arrangement of their component particles; and in *situation*.

The fluid parts may also be altered in *quantity*; in *quality*; and in *place*.

And many of these alterations may exist in combination with each other.

Let us first consider the solids.

They may be simply altered in bulk without any change of texture; and that in two ways. They may become larger than natural, or smaller than natural. In the one case the change is called *hypertrophy*, in the other *atrophy*.

Hypertrophy.—We find the best illustrations of hypertrophy in the muscular system. The huge muscles visibly prominent in the arm of a blacksmith or pugilist, and in the leg of an opera dancer, afford familiar examples of it. In these cases the increased bulk, although it may be unsightly, as being out of proportion to other parts, is not disease, and does not interfere with the most perfect health. By constant exercise the muscles acquire preternatural volume, and weight, and power. It seems to be a law which prevails extensively in the animal economy, that increase of function should lead to augmentation of bulk. The function of the muscular system is contraction, and more frequent and energetic contraction begets an addition of substance. But the same principle obtains in various other parts and tissues. It is especially noticeable in some of the organs which are double. If one kidney wastes, or is spoiled by disease, an increase of function is thrown upon the other, and by a beautiful law of compensation, the sound organ, without any alteration of its peculiar fabric, enlarges. The same is observed to be the case with the lungs. The law resembles, somewhat, one that is familiar to political economists, and is expressed by them in the maxim—that the supply of a marketable commodity is regulated by the demand for it. If, in respect to a muscle, increase of force be habitually needed, the necessity generates the requisite addition of bulk, which implies an augmentation of force. One kidney becoming inefficient, it is necessary the other should secrete a larger quantity of urine; and this faculty is obtained by the enlargement of the secreting organ.

I say this law is of extensive operation in the living body: but it is not universal. It does not hold, for instance, in respect to the organs of the special senses. One eye does not become hypertrophic when the other is blind; nor one ear grow larger or longer because the other is deaf. And we see at once why the law in question does not apply in such cases. These organs differ from such as I mentioned before—from muscular and glandular parts—in this; that increase of their size would not augment or facilitate the function or purpose they are designed to serve. A muscular arm will strike a harder blow, or lift a heavier weight, in proportion to the bulk of its muscles: but we should gain nothing in distance or distinctness of vision by the enlargement of an eye; nor should we hear more acutely or more clearly if our ears were of twice the ordinary magnitude.

Hypertrophy of this unmixed kind—unattended by any change of textur [illegible] it is to this that the term shoul [illegible] as possible be restricted) is beli [illegible] d upon more active nutritio [illegible] (υπερ τροφη). More materi [illegible] in the part by the blood, a [illegible] than are received back f [illegible] the blood to be tak [illegible] The nutritive process preponderates over the reabsorbent. That hypertrophy does thus result from an excess in the process by which parts are nourished and built up, and not from a defect in the process by which they are decomposed and removed, is rendered probable by the fact that an increased quantity of nutrient blood is sent to the hypertrophied part; its arteries grow larger: this we perceive by comparing these vessels with others where no accession of bulk has occurred. This opinion is further strengthened by the converse effect produced upon an hypertrophied part (the thyreoïd gland, for instance) by tying its principal nutrient artery. The magnitude of the bronchocele diminishes. It is curious that no such alteration of size has been noticed in the nerves supplying the hypertrophied parts.

Now these examples of hypertrophy clearly have not the nature of disease. But hypertrophy is often plainly connected with disease, while still it is not itself a morbid process. Thus we have it in the hollow contractile organs, the office of which is to propel fluids:—in the heart when the progress of the blood suffers some mechanical obstacle; in the bladder when the urine, and in the intestinal canal when its contents, are somehow hindered in their natural course; or when, from some undue stimulus or irritation, these parts respectively are urged for a long time together to excessive, or too frequent, action. I shew you preserved specimens of each of these changes. You will find that muscular structure sometimes becomes apparent, under the influence of disease, where very slight traces of it, or none at all, were visible before. You may sometimes observe this in the air tubes, the trachea and bronchi, when the respiratory functions have been long embarrassed; and in the gall bladder, when the exit of the bile has been chronically impeded. And it is worth remarking that this new, or greatly exaggerated appearance of muscular tissue, which is the product of disease in the human body, is a part of the natural and healthy structure in some of the inferior animals.

The several instances of hypertrophy that I have now been mentioning, if they are to be looked upon as morbid, are morbid in a particular and limited sense—morbid, merely as being associated with disease, and not so either in their own processes or in their tendencies. Many indeed of the writers who notice them, speak of the hypertrophy as constituting a source of disease, and a cau [illegible] danger to the patient. But I shall h [illegible] on to shew you hereafter that in [illegible] is really a compensatory change, [illegible] ve of life;—a resource of [illegible] impending danger is post[illegible] ce prolonged.

It may be said of hypertrophy, that it has to do with disease or not, very much according to its seat. As regards the muscular system—in the voluntary muscles it is generally innocent, in the involuntary it is generally connected with disease, sometimes as a cause, much oftener as a consequence, sometimes as both cause and consequence. One way in which hypertrophy may manifestly be a cause of disease is by the pressure of an enlarged organ upon the parts in its neighbourhood, and a consequent interference with the functions or the sensations of those parts.

I am not sure, whether, to those among you who are beginners, I make myself understood. An example or two will render what I mean obvious.

It often happens that the aortic orifice of the left ventricle of the heart becomes narrow and constricted, in consequence of disease in the semilunar valves there situate. Under these circumstances, more forcible contractions of that ventricle are required for the due propulsion of the obstructed blood, and the walls of the ventricle become, accordingly, thicker and stronger. Here the hypertrophy of the left chamber is evidently a consequence or *effect* of the disease that previously existed at its outlet.

On the other hand, when the thyreoïd gland is enlarged, it sometimes presses so much on the parts that lie behind it, as to impede the breathing, or the swallowing. In this case the hypertrophy is the *cause* of consecutive disease.

Hypertrophy is exceedingly common in other tissues as well as in the muscular. Of its affecting the glandular system we have good examples in what I have just mentioned, the true bronchocele — in certain forms of enlarged prostate — in the thymus gland not unfrequently. Hypertrophy of the adipous tissue displays itself in partial accumulations of fat—or in that general and extreme obesity which may amount to disease, and which nosologists have called *polysarcia*. Of a state of the brain which is considered to constitute hypertrophy, I shall speak more particularly when we come to the morbid conditions of that organ. Hypertrophy is also said (I am not certain with how much propriety always) to occur in the cutaneous, mucous, and vascular systems, in the bronchial, mesenteric, and mammary glands, in the liver, spleen, and pancreas. I suspect that the enlargements of these parts to which the term hypertrophy has been sometimes applied, most frequently combine some alteration of texture with the increase of size, and therefore are not strict examples of hypertrophy.

It is of importance that you should be aware that hypertrophy of one or more of the component tissues of an organ may exist, while the others either remain unaltered, or are changed in some other way. It frequently happens that when one component part is thus over nourished, it is so at the expense (as it would seem) of another which becomes atrophied. There are parts of the heart upon which a certain quantity of fat is usually deposited. It is not uncommon to meet with this in excess, and at the same time to find the muscular texture of that organ pale, flabby, soft, and wasted. What has been deemed hypertrophy of the female breast consists, almost always I believe, in excessive development of its adipous tissue, without any enlargement of the gland itself—or even with its diminution.

In the majority of cases the size of an hypertrophied organ is augmented; it has a larger superficies than is natural: and, therefore, I have introduced hypertrophy to your notice among the alterations to which parts are liable in *bulk*.

But it is not always so. There may be hypertrophy of an organ without enlargement—in at least three different ways:—

1st, In hollow organs, where the additional substance is deposited centrally, and the hypertrophy takes place at the expense of the cavity:

2dly, In any organ, whereof the hypertrophy is confined to one or more tissues, while the others are proportionably wasted: and,

3dly, Hypertrophy may even be consistent with no alteration of shape, or increase of bulk in any direction, the organ occupying exactly the same space, and preserving the same absolute dimensions as before, but becoming more full of component particles, more compact, heavier. This state is well exemplified in certain cases of hypertrophy of bone: the spongy or cancellous texture of the bone disappears—its specific gravity is increased—it becomes hard, firm, and like ivory. The structure appears, to the eye, to be changed, yet remains the same, except in respect of its density.

I have told you that hypertrophy is usually a conservative and salutary change. We shall meet with many illustrations of this as we proceed. But I may take the present occasion of pointing out to you some of the beneficial tendencies of this change when it takes place in bone. For, since the diseases of the bones do not belong to my province, I shall have no other opportunity.

You probably know that in the disorder called rickets, occurring principally in childhood, the bones are soft, and deficient in their more solid ingredient; so that they bend under the weight of the body or the contraction of the muscles attached to them: after a certain period this disproportion in the constituent particles of the osseous tissue ceases; but the bones are permanently distorted, and, therefore, less adapted to their office, and less strong, than if they had remained straight. Now the natural remedy that ensues is very striking and beautiful. The bent bones become *hypertrophied* in certain places; they grow thicker, denser, harder, and, consequently, stronger, at the very concave part where the stress of the pressure is the greatest.

The following experiment shewed the same thing in a somewhat different manner. An inch of the middle part of the fibula of a quadruped was cut out. A long time afterwards the animal was killed. The tibia was then found to have become considerably thickened exactly in that part of it which corresponded to the defect in the fibula*.

The same principle appears still more conspicuously in a case of disease related by Cruveilhier. He saw in the Hospital at Limoges a young man who had lost, (from necrosis with suppuration) the middle third of his tibia; of the larger of the two bones of the leg. The lost bone had not been reproduced, but the fibula, the naturally slender bone, had become thick and strong enough to support the whole weight of his body.

I was explaining to you that hypertrophy may exist, without enlargement. On the other hand there may be enlargement, without any change of structure, and yet no hypertrophy. The liver and spleen are apt to acquire a considerable increase of bulk from mere congestion and distension of their vessels by blood. An immense spleen will shrink into its proper size in a few hours, after hæmorrhage from the stomach, whereby the gorged venous system of the abdomen has been relieved. Dr. Townsend mentions a remarkable example of the same kind respecting the liver. The inferior cava had been compressed by an aneurismal tumor, so that the passage of blood from the liver was greatly impeded. Under these circumstances the liver became so large as nearly to reach the crest of the ilium. Suddenly the aneurism burst, the pressure was taken from the cava, the hepatic veins were allowed to empty themselves, and before the body was opened for inspection, the liver had nearly resumed its natural situation and dimensions.

Of the causes of hypertrophy little more is known than I have already told you. The most important circumstance for you to remember is that increase of function produces increase of nutrition. This is nearly a general fact; but whether the converse proposition be as generally true—whether hypertrophy of a part always denote increased activity in its function—is much less certain. If that were ascertained, we might hope to discover the actual office of certain parts of the body, the uses of which we do not yet understand (of the thyreoïd gland, for example) by investigating the circumstances under which they become subject to hypertrophy. In Mr. Mayo's *Outlines of Human Pathology*, a case is related of hypertrophy of the tongue, in a young child, treated by Mr. Hodgson, of Birmingham. It would seem to be impossible to account for this by any increased energy in the known functions of that member.

A few isolated facts, bearing upon some points connected with this inquiry, have been made out.

In the first place, certain localities appear to be influential in the production of certain forms of hypertrophy. Thus bronchocele is very frequent among the inhabitants of certain districts — especially in close or marshy vallies at the feet of high mountains. Its real cause is to be sought in some condition, hitherto undetermined, of the air of those places, or of the water, or of both.

2dly, Certain congenital or acquired conditions of the body tend to produce local hypertrophy. In that peculiar diathesis which we call the strumous—and of which I shall have much to say hereafter—certain parts of the body, as the upper lip, and the extremities of the long bones, undergo a kind and degree of enlargement that seems properly to fall within the definition of hypertrophy.

3dly, Certain habits of life have a distinct effect in promoting certain forms of hypertrophy Full diet, with bodily inactivity, leads to hypertrophy of the adipous tissue. So general is this tendency, that we confidently act upon it in the fattening of animals. Shut a healthy pig up in a small sty, and give him as much food as he is willing to eat, and you ensure his rapid pinguescence. If you cannot so certainly attain the same result by similar means in the human animal, it is chiefly, I believe, because moral causes, and especially mental anxiety, will effectually counteract those means. A healthy man, with a quiet mind, using habitually a full nutritious diet, and leading a sedentary life, will fatten, I apprehend, as unfailingly as a calf, or a turkey. Sometimes, indeed, fat accumulates, to an enormous extent, in spite of abstinent habits, and very active exercise.

4thly, It is a curious fact that the removal of certain parts of the body, as the testicles in male animals, and the ovaries in females, increases the disposition to accumulate fat. The same tendency appears to be given, for a time, by the extirpation of the spleen.

Of the curative methods that hypertrophy may require it would be premature to speak at present.

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* Mr. Stanley's Lectures, Coll. Surg.

The *bulk* of parts may also be *augmented* in various other ways. The hollow organs may be inordinately distended by an undue accumulation of their natural contents,—or by matters that do not enter them in health:—the solid organs may have their size increased by the presence of matter foreign to their natural composition, collected in their interior, or distributed through the interstices of their proper tissues, or deposited upon their surface: and in each case the functions of the part itself may be disturbed or suspended; or the functions of parts immediately contiguous to it may sustain damage from its pressure; or the functions of distant parts connected with it by dependency of office may be disordered; or all these consequences may exist together. Numerous examples of them all will hereafter be brought under your notice.

Atrophy.—Let us next attend to that condition which is the opposite of hypertrophy—to *atrophy*, namely, in which parts become notably smaller than natural, without other alteration of texture.

The two conditions contrast strongly with each other in their nature and origin, as well as in their physical character.

Hypertrophy depends essentially upon an increase — atrophy upon a diminution or defect, of the nutritive functions. You will find that atrophy plays an important part in altering the bodily organs, both in health and in disease.

Of the effect of atrophy in causing alterations consistent with health, I shall merely remind you of some instances, that you may the better comprehend its morbid operation.

There are parts of the body, as you well know, destined for a temporary purpose only. Upon the cessation of their especial function they dwindle, or disappear. We have examples of this in the thymus gland, in the supra-renal capsules, and in those parts of the mechanism of the circulation that are peculiar to the fœtal state. The atrophy here begins as soon as the child is born, and not only is consistent with, but is necessary to, its perfect health. As life advances, we see the same principle at work, remodelling from time to time those structures of which the office has only a limited duration. After the child-bearing period in women is over, when the functions of the ovaries expire, these organs shrink, through atrophy. It is so with the testes of old men. Indeed atrophy, to a certain extent, pervades all parts of the system in old age: the muscles diminish in size, the whole body is less plump, the bones lose a portion of their substance, and become brittle.

Even in the period of fœtal life this process, by which parts are starved and stunted, sometimes displays itself. But here it is no longer compatible with the integrity and well-being of the system. The arrest or retardation of the nutritive function produces changes of great interest, and gives rise to various kinds of monstrosity. Harelip—fissure of the palate—certain malformations of the heart—are familiar examples of the consequences of intra-uterine atrophy.

Atrophy, considered as a morbid process, is conspicuous, no less than hypertrophy, in the muscular system. We see it in the voluntary muscles, whenever a limb remains long in a state of inaction—whether from palsy dependent upon disease in the brain or spinal cord; or from pain connected with disease of a joint; or from perversion of the will, as in the self-inflicted penance of the Fakir. The same law, therefore, obtains here, which was previously announced; the development of a part is proportioned to the activity of its function. In most cases I believe the atrophy will be found to resolve itself into a deficient supply of healthy arterial blood. Mere inaction will produce it; but it is probable that the inaction operates simply by diminishing the flow of arterial blood to the muscle. It has, indeed, been supposed that in paralysed limbs the altered condition of the nervous influence has also some share in determining the atrophy. The alleged facts on which this supposition is founded are of this kind. In the first place, when the palsy is imperfect, the diminution of bulk in the muscles is not always (they say) in proportion to the degree in which their power of action is impaired. But it is not very easy to measure and compare, in different cases, either the amount of action remaining to the muscles, or the degree in which they waste. Secondly, it has been remarked that when a limb is deprived of the power of motion by some injury that destroys or interrupts the functions of its principal nerve, atrophy takes place to a greater degree, and more rapidly, than when the palsy results from disease of the brain. But any local injury which affects the functions of the nerve will be likely to impair the functions of other parts of the limb also, and among the rest, those of the arteries. I therefore look upon the proposition, that what is called a "*change in the innervation*" of a part tends to occasion its atrophy, as at least a questionable proposition: and even if its truth could be established, the change of innervation would be most likely to operate by somehow reducing the supply of healthy arterial blood. The nerves belonging to palsied and atrophied muscles are said not to diminish in size. It is with the arterial circulation, certainly, that atrophy is most concerned. It is upon a diminution of the number of the smaller, and, perhaps, also of the capacity of the larger arteries, that senile atrophy depends. We find atrophy of the brain accompanying certain diseased conditions of its main arteries. So the testicle withers when the spermatic artery is tied for the cure of varicocele.

Pressure of any kind, exercised either upon the larger arterial trunks, or upon the capillary vessels, so as to lessen without completely preventing the supply of blood, will be found to give rise to atrophy, whenever the due quantity of blood is not furnished by the establishment of a collateral circulation. *Chronic inflammation* is sometimes attended by the wasting of the part which it occupies. It acts, in all probability, by unfitting the capillary arteries for transmitting the requisite quantity of blood. Various diseases, by which the supply of nutriment to all parts of the body is checked at its source in the digestive organs, or by which some unnatural drain upon the system is kept up—by which, in short, the quantity of the nutrient fluid is diminished, or its quality impaired—produce a greater or less degree of *general* atrophy: but to this universal wasting we usually apply the term *emaciation*.

Atrophy, then, such at least as is morbid in its nature, may be the consequence of inaction, of compression, of chronic inflammation, and of various diseases: but in all cases the defect of nutrition which causes the atrophy seems to be resolvable into a diminished supply of healthy blood through the arteries.

As in hypertrophy, so likewise in atrophy, the change may be limited to some one or more of the component tissues of a part:—and from this altered proportion of its constituent tissues the appearance of the part may be remarkably modified.

So also, as hypertrophy may exist without any increase of absolute size, atrophy may occur without any diminution: as in the heart, when the cavities are dilated in the exact degree in which their walls become thinner. Bones, externally sound in appearance, have had their specific gravity so greatly reduced by internal atrophy, that they would float upon water like a cork.

It is a curious fact—which I mentioned in other terms before,—that an atrophied part is sometimes plentifully encompassed by fat. But this is by no means a necessary accompaniment. Why it happens in one case, and not in another — whether the adipous hypertrophy is ever the cause of the atrophy associated with it, or the atrophy the cause of the hypertrophy:—these are questions which, in the present state of the science of medicine, do not admit of any certain solution.

It is scarcely necessary to observe that the changes of *bulk* which we have been considering, imply often, though not always, changes of *form* also. You will have one or two of the chambers of the heart greatly enlarged, while the others remain of their natural size. Of course this altered proportion modifies the shape of the organ.

Signal changes of form are produced also by inflammation, by pressure, and in various other ways. But after all, modifications of figure are rather to be considered as *accidents* of disease than among its important *elements*: and I pass on to other alterations.

Induration.—Various parts of the body are liable to be changed in *consistence*. They may become harder and firmer than before: or they may become softer. To the state of increased or unnatural hardness the term *induration* has been applied: the same word is used also to express the process of hardening. To the state of diminished consistence we give the name of *softening*. The French pathologists, who first noticed this condition as an element of disease, call it *ramollissement*.

You are already aware—those of you who have attended the lectures of the Professors of midwifery and of anatomy—that a slow process of natural and healthy induration is going on throughout the body from the earliest period of uterine life to extreme old age.

There are several ways in which unnatural induration may take place.

Induration of an organ may happen, without any other alteration of its proper tissue, in consequence of inordinate fulness of its blood-vessels. This is apt to occur in the lungs, or liver, whenever the free exit of blood from these organs is in any way impeded. They become stretched, tense, resisting, hard.

In like manner induration of the hollow organs, or of cellular parts, will arise (without any change of their texture) from an undue accumulation of fluids within them:—of bile, for example, in the gall-bladder—of urine, in its receptacle — of gases in the stomach and intestines—of serosity in the cellular tissue.

In either of these kinds of induration the unnatural hardness may be temporary only—or it may be the permanent accompaniment of other disease. It is necessary that you should be aware of its occurrence, and of its nature. I say of its *nature*, because this is not always understood. In the induration arising from the last circumstance I mentioned—viz., from infiltration of the cellular tissue with the serous or albuminous parts of the blood—from *œdema*, in short—the hardness has sometimes been erroneously ascribed to some other morbid condition.

Dr. Carswell has shewn that in the curious disease of new-born children who are said to be *skin-bound*, the hardness of the surface is the consequence of simple œdema of the subcutaneous cellular tissue. The same phenomenon is remarkable in œdema of the tongue. I believe the induration belonging to œdema will be found to be the greater in proportion as the effusion is recent, and has taken place rapidly.

Again, induration may accompany, and be a consequence of, simple hypertrophy. Of this I have already shown you examples: especially in the eburnation (as it has been called) of hypertrophied bone.

Induration of an organ may also result from the *ex*pression of its fluid, and the *com*pression of its solid parts. We see this extremely well in the lung, when it has been thrust and flattened against the vertebral column by fluid effused into the pleura —or when it is still more tightly bound down by an investing layer of plastic lymph. In this way, therefore, induration may be consistent with atrophy. That the natural structure of the hardened lung is not always lost in these cases we know, because we can restore, to a certain extent at least, its bulk and spongy feel, by forcibly inflating it. The spleen sometimes exhibits the same kind of induration, under the constricting force of an investing false membrane. I am mentioning samples only of these changes.

More frequently induration depends upon the presence, in the internal texture of parts, in the little spaces left between their component tissues, of fluid or solid matters which are not found there in the healthy state. Bony or earthy particles are sometimes laid down, and the part thus changed is said to be ossified. There are few parts of the body in which this kind of induration does not occasionally take place. It is especially common in the coats of arteries, and in the subserous tissues. Blood, or fluids separated from the blood, may fill and obliterate the natural interstices, and concreting, tend to solidify and harden the part which they occupy. What is called *hepatisation of the lung* is a good instance. I need not tell you that the healthy lung is spongy and crepitant under pressure: in this altered state it no longer crackles between the fingers—its spongy character is lost — it resembles liver in its compactness and colour, and it is therefore said to be "hepatised." This is a consequence of inflammation; and induration of this kind is a very common consequence (as we shall see) of the same morbid process in various other parts and organs. Another instance of induration of the pulmonary substance we have in what is badly called pulmonary apoplexy. This is independent of inflammation. Blood is collected and coagulates in a part of the lung which should contain air—in the vesicles of one or more of its lobules: the lobules thus gorged with blood become even harder and firmer than when hepatized—but by a different process.

In the instances last mentioned, fluids, after escaping from their proper vessels—*i.e.* in technical phrase, after being *extravasated*, pass into the solid form, and thereby render the parts which they pervade harder and more firm. But fluids may concrete and harden *within* their proper vessels, and so lead to another form of induration. Thus the blood, under certain circumstances, coagulates in the living veins—nay, sometimes even in the heart itself: and we may hereafter have to consider the conditions under which this coagulation is liable to occur, and the serious consequences that it involves. The bile again, as you probably know, sometimes concretes, by a rude kind of crystallisation, into what are called gall *stones*: and the passage of these calculi through the narrow ducts that connect the gall bladder with the bowel is apt to be attended with pain the most intense. The formation of *urinary* calculi is not exactly of the same kind.

Numerous specimens of all the changes I have been describing are upon the table before you. You may examine them at leisure after lecture, or in the museum.

I have yet to notice another source of unnatural induration, in the deposition or growth of unorganised masses of matter within the body, differing remarkably from any of the solids or fluids that enter into its healthy composition. These unnatural formations vary considerably in their nature and appearance, and in their consistence at different periods. Sometimes they exist in distinct and separate masses, and whether hard or soft in themselves, cause induration by their pressure upon surrounding textures: sometimes they are diffused through or among the natural tissues of a part, which thus they indurate. All the varieties of tubercle, and of carcinoma, and many other forms of disease which have been styled malignant, fall under this head.

These new and morbid products play a fearful part in disorganising the bodily frame, and in embittering and shortening life. They will necessarily occupy much of our attention in the progress of the course. At present I merely point them out as illustrations of the manner in which the consistence of parts may be *increased*.

A RÉSUMÉ OF
DR. FRANZ'S EXPERIENCE IN CURING STRABISMUS

BY AN OPERATION; BEING AN ANSWER TO THE NOTE, IN A LATE NUMBER, SIGNED "SOLOMON SINGLE-EYE."

To the Editor of the Medical Gazette.

SIR,

As I have had the opportunity of judging of the ultimate effects of Dieffenbach's operation for strabismus, I beg leave to state in general the result of my experience, for the express satisfaction of the inquirer regarding squint-curing, being an answer to the questions contained in his note published in your number for Sept. 19.

I will, in the first place, mention a few points on which the perfect success of the operation depends. If these points are not adhered to, certainly the squinting may not only not be cured, but rendered even more formidable, or sight, if not the organ itself, entirely be destroyed.

1stly. Not every case of squinting admits of treatment by operation; great care and attention must be paid, therefore, to the selection of the case. The muscles drawing the eye out of position, the division of which is intended, must actually be shortened or contracted. The contraction of the muscles is either congenital or has become habitual. The cause of this habitual contraction, whatever it may have been, must by therapeutical or surgical means have been removed, so that its action at the time of operation no longer exists; or it must be of such a nature that we may reckon upon eradicating it entirely in time. The squinting must not be complicated with malformation or organic disease of the brain, of the orbit, or the parts in the orbit. The age of the patient is also to be taken into consideration. In my opinion, the success of the operation will be very doubtful (with the exception of a few cases) where squinting has existed from forty-five to fifty years.

2dly. The operation must be performed with care and skill. The ball of the eye itself must never be injured. The conjunctiva of the canthus towards which the eye is turned must be more or less separated from its connections with the globe. The shortened muscles must be perfectly divided, either in their tendinous portion close to the sclerotica, or in their muscular fibres at a greater distance from this membrane, or, what amounts to the same thing, all connections of the shortened muscles with the sclerotica must be more or less separated. The degree of squinting determines the extent of separation of the conjunctiva, as well as of the muscles from the ball.

3dly. Even if these two principal rules have been thoroughly observed, the result may be yet unsuccessful, where the after-treatment is not properly conducted. An appropriate use or exercise of the eye, and strict attention to the activity of the antagonizing muscle, are here the chief indications.

Where these three principles are strictly adhered to, a perfect and permanent cure of strabismus may always be predicted. The perfect success of the operation consists not only in the removal of the unsightly deformity, but in the pupil occupying exactly the centre of the orbit; in the eye enjoying freedom of motion in harmony with its fellow, together with an expressive look; in its restoration to perfect vision, which, during the existence of squinting, was very limited; and lastly, in the patient operated on feeling himself removed from the sphere of popular prejudice, and restored to that tranquillity of mind of which he, in common with all deformed persons, was deprived.

I have now performed this operation in fifty-three cases. In all the squinting was convergent, and in a few the eye was at the same time directed inwards and upwards. In most cases the squinting existed but in one eye; in many it was combined with a cast in the other. In two cases the inversion existed in both eyes to such an extent, that a large portion of the cornea was hidden by the inner canthus. In eight cases the deformity was congenital; in eleven it had arisen from imitative instinct. In five children partial opacity of the cornea was combined with squinting, which was treated before the operation was undertaken. One case was first operated upon for a partial symblepharon; two cases for cataract. In one case the eye was not only atrophied, but totally amaurotic. In another patient the remote cause of squinting was an earlier hydrocephalus; the proximate, a debility of the abductors of the eyes, which also occurred as a complication in many of the other cases. In the rest of the cases of habitual squinting, it had its origin in various ophthalmias, teething, convulsions, injuries, &c. In all the affected eyes weakness of sight existed to a greater or less extent; many of them were perfectly myopic. Muscæ volitantes, photopsia, nystaxis or nictitatio palpebrarum, occurred in a few cases. Where the eye was much inverted, the pupil was observed to be dilated when the eye was in this state.

As regards the steps of the operation, the fixing of the eyelids was generally effected by the fingers of one assistant, to save the patient from the great and unnecessary pain which the retractors always cause. The ball of the eye was always kept in position by a fine hook passed through the conjunctiva, or by a pair of forceps adapted for this purpose, in order to spare the globe from all dangerous pressure and wounds, which the double hook for the sclerotica imparts to it. A blunt hook for passing under the muscle was never found necessary; but it may be of service after the completion of the operation, if used as a probe to ascertain that all the fibres of the muscle are thoroughly and perfectly divided. In nearly all cases the conjunctiva was divided with a pair of scissors; and in all these were used for the division of the muscle. The muscle was found atrophied in but few instances; in some it was hypertrophied, and in many its attachments were irregular, bundles of muscular fibres being inserted to the sclerotica behind the proper tendon, or this expanded to a greater or less extent upwards or downwards. The bleeding is always inconsiderable, generally amounting to but few drops. The operation is simple, causes but little pain, and may, where the patient is quiet, be performed in one minute. In not one case was the operation followed by inflammation. In five cases it was necessary to divide, besides the internal rectus, the superior oblique also; and in some to divide partially the superior or inferior rectus. In one case where, after division of the adductor, the abductor drew the eyeball to too great a degree outwards, and kept it in that position, the external rectus was divided a fortnight after the first operation.

The pupil occupied its normal position in most cases immediately after the operation: in some it was first directed a little outwards, or was not on a level with the pupil of the other eye, but in both instances righted itself within the first four or eight days. In a few cases where the pupil occupied its proper position immediately after the operation, it became slightly inverted a week afterwards, but regained its normal position in a space of from four to six weeks, by proper exercise of the eye. In three cases the pupil of the operated eye is yet slightly inverted, but even then only when the persons look at objects near them. This may be attributed to the squinting, which was very marked, having been of 16, 23, and 44 years' standing in these respective cases, besides being complicated with a considerable degree of amblyopy, shortsightedness, and weakness of the external rectus. Neglect of proper exercise of the eye in the one case, in the other a catarrhal inflammation, which attacked the eye a week after the operation, greatly contributed to this result, that may yet in time be remedied by judicious exercise of the eye, and the treatment of the weakness of the external rectus, which is still continued. In the third case the use of caustic, which was three times employed to destroy a tumescence of the conjunctiva, seems to have contracted this membrane, and have caused the slight cast yet to be observed. The abovementioned case, where the inversion had originated in hydrocephalus, presents also some peculiarities. After division of the shortened muscles, the squinting yet remained almost in the same degree as before the operation. By a proper exercise of the eye, by treatment of the almost paralytic state of the abductors, and by a second division of the adductor in the one eye, I however succeeded in bringing both eyes into a perfectly normal condition.

The wound in the conjunctiva generally heals in a few days. Where this membrane does not unite perfectly with the sclerotica, it assumes the appearance of an excrescence, which may be more safely and more readily removed with the scissors than by means of caustic, thus sparing the patient also a great deal of pain. A cicatrix never remains in the conjunctiva; the redness of this membrane in the canthus also disappears within two or four weeks. In some few of my earlier cases the valvula semilunaris, which had been injured, is not yet quite regenerated, and the ball appears a little more prominent. Those eyes that were slightly affected with weakness of sight, regained in a few weeks a full power of vision; but where amblyopy existed to a greater degree, this improvement of sight did not take place until a longer time had elapsed, and in some even therapeutical means were necessary. Many saw objects situated towards the temporal side of the operated eye more distinctly than those in other situations. In all, double vision of objects situated towards the nasal side was remarked: in some this occurred immediately after the operation, in others after the lapse of a week or more. Some few saw objects double only when placed in a particular position. This distinctness of vision towards the temporal side, and double vision towards the nasal, remained in some cases only a few days; in the most, however, several weeks. Where muscæ volitantes, photopsia, nystaxis or nictitatio palpebrarum existed, these affections decreased in proportion as the centre of the posterior hemisphere increased in acuteness of sensation*. Many of my patients have confessed to me that they feel themselves far more happy and composed in mind since the removal of the deformity.

I have here given a correct statement of my experience from accurate observation, detailing the advantages as well as the disadvantages that have attended my operations, and may safely say that in not one case strabismus has returned. The pupil has its normal position; the motions of the eye are free, both eyes acting in harmony. Even in the three above-mentioned cases, where the success of the operation might be called questionable, the slight inversion of the operated eye can only be detected by a careful observer. In proof of my assertion, I annex the addresses of my first cases, related in several numbers of the MED. GAZETTE for this year:—

CASE I.—Louisa M'Cleish, 4, Chapel Place, South Audley Street. The left eye was slightly inverted, but the right to such an extent that one-third of the cornea was hidden by the inner canthus. This is one of the less successful of the above-mentioned three cases.

CASE II.—Emma Mattoks, 31, Circus Street, New Road, Marylebone. The right eye slightly inverted; in the left, the inner margin of the cornea was in contact with the caruncula lacrymalis. Both these cases were operated upon on the 10th, and published 17th April.

CASE III.—Thomas W. Gest, 9, Phenix Street, Soho. One-fourth of the cornea in the left eye hidden by the inner canthus. Operated upon on the 6th May; published by Mr. Steinhaeuser on the 22d May.

CASE VI.—William Nicholson, clerk at Messrs. Leaf and Co.'s, 47, Wood Street, Cheapside. The left eye, in which one-fourth of the cornea was covered by the inner angle, was operated upon on the 14th of May.

CASE VII. — Susan Ridgow, 61, Princes Street, Leicester Square. Right eye, where one-fourth of the cornea was hidden by the inner canthus, operated upon on the 20th May. Both these cases were published 12th of June.

In concluding I may perhaps be permitted to answer the contended question—"to whom the priority in execution of Dieffenbach's operation for strabismus in England belongs?" By the testimony of the Medical Journals Mr. B. Lucas published his first case, operated upon on the 11th of April, in the Lancet for the 18th of April. The British and Foreign Medical Review for July *a. c.* says "we believe he was the first to perform it in England." My two first cases were operated upon on the 10th of April, and published in the MEDICAL GAZETTE on the 17th of April. The Medico-Chirurgical Review for July, *a. c.* says, "As Dr. Franz's cases have had the priority of publication we think it only fair to notice them." The Dublin Medical Press of April 29th states, "We believe Dr. Franz's operations are the first of this kind performed in Great Britain."

As this question is of no practical value, I think it of very little importance who first performed the operation for strabismus in this country.

Your obedient servant,
AUG. FRANZ, M.D.

19, Golden Square, Sept. 22, 1840.

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[*] See "Physiological Observations on Eyes operated on for the cure of Strabismus," MEDICAL GAZETTE for June 26th, 1840.

AN INQUIRY INTO SOME OF THE CONSEQUENCES AND CAUSES OF FAILURE OF THE

NEW OPERATION FOR THE CURE OF STRABISMUS OR SQUINTING.

By. E. W. Duffin, Esq.
Surgeon.

[*For the Medical Gazette.*]

(Continued from page 18.)

As the arguments adduced in my last communication to explain the facts connected with the two singular cases therein related are not founded on the ordinarily received doctrines of modern physiologists, and do not take into consideration the action of the oblique muscles as opponents of the abductor, I am aware they are in these respects highly objectionable; still, as they appeared reasonable, and so directly to support the old theory, that apparent identity of origin and intercommunication of nerves in their course are calculated to produce similarity of function, or mutual co-operation in the action of the muscles to which they are distributed, I ventured to introduce them, even at the hazard of being considered, *pro tempore*, ignorant of the current opinions maintained at the present day on this subject. The researches of Drs. Monro, Whytt, Alison, Müller, and others, have, I believe, been quite successful in establishing—

1. That although nerves may lie in juxta-position in the same sheath, they never absolutely anastomose.
2. That apparent identity of origin does not by any means imply identity, or even similarity, of function. And,
3. That all nerves perform their functions independently of each other*.

The opinion of Mr. Walker, of Manchester, that the parallelism of the eyes is preserved by the action of the superior oblique muscle†, although very ingenious, is of course completely negatived by the results that have uniformly followed the division of the adductor. Were Mr. Walker's views correct, we should expect that the eyes would preserve their consentaneous movements inwards after the operation, because the superior oblique still remains uninjured for that purpose; but we find the reverse: the eye cannot be turned inwards either in conjunction with its fellow, or consentaneously in this direction when its fellow is turned outwards. And when, under certain circumstances that will be presently noticed, the pupil does turn a little inwards after the adductor is divided, we now know that this movement is more the result of the conjoined action of the inner fibres of the superior and inferior recti, than dependent on the contractions of the superior oblique; and that cutting these inner fibres, though not the most judicious mode of proceeding, always rectifies the position.

As the contractions, however, of the superior oblique, judging from the direction of the fibres of the second belly of the muscle, as well as from its tendinous insertion, are calculated to draw the eye a little inwards, and to rotate the globe slightly downwards, and the course of the fibres of the inferior oblique is calculated to roll the eyeball in a contrary direction, it is possible that these muscles may, in some degree, act as antagonists to the external rectus when the adductor is divided, and be a principal cause why the pupil does not turn outwards by the action of this muscle as a general rule*.

For want, then, of a more precise and satisfactory *rationale* of the circumstances attending the first girl's case recorded in my second communication, although liable to innumerable objections, it appears to me that we must be content for the present to adopt the theory of Professor Alison, "that the sympathetic movements of the eyes, like sympathies in general, proceed from *mental sensations*, and that the organs sympathize with each other only so far as the sensation, which is the natural and appropriate stimulus of the one, is excitable by irritation of the other."

It is not, however, my intention to weary the reader by burdening my practical facts by a lengthened physiological inquiry into their cause, however interesting and tempting such a discussion may be, having it in view to correct and publish these communications hereafter in a separate volume, illustrated with appropriate engravings, when I shall have more leisure and space to follow up the investigation. My present remarks, therefore, will, I trust, be considered the hasty results of practical observations, which I am anxious should be made known, crude as they are, before they can be appropriated and promulgated by others.

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* Vide an Article by Professor Alison, 2d vol. of the Edin. Med. Chir. Transactions.

† Vide Philosophy of the Eye, by John Walker.

* Whilst correcting the press, I may just state that I have this day performed some experiments on a dog, the results of which have completely satisfied my mind in regard to the action of the oblique muscles. The facts shall be published next week. In the meantime I may express my conviction, that no one has yet divided either of these muscles, and I would advise no one to attempt the operation, as a cure for strabismus, without perusing the observations I have to offer upon the subject.

At first sight it may appear unnecessary to warn those who have not directed their attention to the subject of strabismus, that they are very liable to select the wrong eye for operation; but I can assure them that it is often no easy matter to determine which side is most affected, or whether the individual squints with only one or both eyes.

Mr. Crommelinck informs us that, having had an opportunity of examining a great number of persons affected with squinting, he is disposed to confirm the statement of Buffon, "that strabismus never affects both eyes simultaneously. Where one eye," says he, "is much affected, the other, at first sight, no doubt seems equally so; but when operation restores the distorted eye to its natural position, the opposite one loses its apparent deviation either immediately, or after the lapse of a short time*."

In the majority of instances this opinion is correct; but I cannot assent to the statement that strabismus "never affects both eyes simultaneously," because I have seen very numerous examples to the contrary, and have been obliged to operate on the second eye also; and this I have done, not only with the effect of totally removing every vestige of strabismus, but with the still further advantage of leaving both eyes so precisely similar in general contour, size, and appearance, that even the most critical observer could detect no trace of former distortion, nor perceive any evidence that an operation had been performed, beyond the slight remains of cicatrix, resulting from the wound made in the conjunctival covering.

Unless a case will stand this test, I do not consider it entitled to the epithet *perfect*, since I can produce, for the satisfaction of the curious, or incredulous, numerous examples of this degree of perfection. Every thing short of this, although the original obliquity may have been removed, I consider an evidence of only partial success.

But to return to the question, whether squinting ever occurs in both eyes simultaneously. I believe the more general rule to be, that the distortion very rarely *assails* both eyes at the same precise period, but that in the course of time both may become *affected;* the second being gradually implicated by sympathy, or by the unconscious efforts which the patient makes to render the axis the same, in order to obviate double vision. And although for a length of time the distortion may continue to be of such a nature that removing it from the eye which was first attacked will remedy the defect in that subsequently involved, yet, in a great many cases, it becomes a permanent disorder in both, especially if, during its continuance, the eye has been the subject of strumous, or other inflammation, calculated to produce any thickening, contraction, or other morbid change, in the sub-muscular cellular tissue. I have always found, when the operation consisted of more than dividing the tendon, and the strabismus was at the same time of long duration, that ultimately the second eye required operation also, before the position of these organs was rendered perfect in every respect. It is always proper, however, to operate on only one eye at a time, and of course we ought to select the most faulty, namely, the one primarily affected, and afford the other the chance for a week or two of rectifying itself without an operation.

"The degree of power," says Mr. Guthrie, "that a person possesses over his eyes, is occasionally very doubtful on the first inspection of them, both eyes squinting in turn or together, and it is only after a little delay that the really defective eye can be clearly ascertained; whilst in others, the motions of the eye are altogether so irregular, and so little under control, that it becomes doubtful which muscle should be divided, or whether it would be proper to attempt any operation at all." When, then, we cannot determine this question by inspecting the eyes, and desiring the patient to look at an object placed alternately on each side of his nose, so as enable us to estimate which pupil is capable of being turned most inwards, we shall generally be assisted by the knowledge which the individual possesses of his own case, except in children, when we must either rely on our own judgment, or on such information as we can obtain from the parents or friends of the party. The sight of the eye most affected is very often somewhat impaired, and in many cases partially amaurotic. Indeed, one of the most important results of the operation, in numerous instances, is the subsequent gradual improvement of vision. A person who squints considerably cannot see an object placed at a little distance from him with both eyes at once: hence many persons affected with strabismus imagine themselves to be near-sighted, because, in order to see an object distinctly, *i. e.* to obtain the advantage of seeing it with both eyes at the same time, they are obliged to hold it near the face, that they may bring it within the axis of each simultaneously. But as soon as the distortion is removed by operation, not only is this near-sightedness cured, but the imperfection of vision proceeding from the image not being depicted on the most sensitive part of the retina, that destined to receive visual impressions and transmit them to the sensorium, very soon ceases. Although, as just remarked, the degree of power possessed by a person who squints over his eyes is occasionally doubtful, in the majority of cases it is by no means limited; on the contrary, by an act of volition, we shall find that the eye is capable of the same movements, and to an *almost* similar extent, as if it were in every respect free. If the palpebræ of the best or sound eye be closed, and gentle pressure made on the globe so as to steady it, the faulty eye, provided it be not prevented by any unnatural adhesion, or other morbid change of structure, generally starts immediately from its abnormal situation into the proper position that it ought to occupy, nearly midway between the extreme boundaries of the inner and outer angle, and is capable of being turned outwards in almost any natural degree. But as soon as the sound eye is uncovered, and the voluntary effort is discontinued, the faulty one returns again to the inner canthus. It can also be directed outwards, in unison with its fellow, when the individual looks at an object placed at the corresponding side of him. In short, the patient can move his eyes in any direction he chooses; but as soon as the voluntary effort ceases, they yield to the morbid power by which, when quiescent, they are controlled, and the obliquity returns.

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* Dublin Medical Press, No. 88.

From the want of a knowledge of these facts many surgeons are misled in their early attempts to relieve strabismus, and erroneously consider the operation completed when in reality it is only half performed; or when, perhaps, the tendon has not been even cut at all. When assisting others, I have frequently pointed out that the operation still required some further steps to render it perfect, and have been usually met by the observation, "that nothing further could possibly be requisite, as the tendon was clearly divided, and the patient possessed the power of turning the pupil outwards; the eye being straight, and in its proper position, when the other was covered over." The only conclusion to be drawn from this reasoning is, that the operator was not aware that the division of the tendon alone, in many cases, is insufficient to liberate the eye and remove the obliquity. The oblique movements in the directions upwards and inwards, and downwards and inwards, are by the unpractised operator ascribed to sympathetic influence; being satisfied if his patient cannot bury the pupil in the nasal canthus in as great a degree as he could previously. Now we have already seen that these *diagonal* movements do not proceed from sympathy, but from the natural contractions of the superior or inferior rectus, whilst the eyeball still continues tethered by some portion of fibro-cellular attachment; and that if this be divided, the operation will be complete.

The most decided test of a perfect separation of the tendon and adventitious adhesions is not that the eye can assume its proper position when its fellow is covered over, or that it can be directed outwards by an act of volition, but that there result from the operation a total inability to move the pupil *horizontally* inwards from the natural position that it ought to occupy in the centre of the orbit, and at the same time an incapacity of directing it in the slightest degree in either of the diagonal lines above indicated. When, in such case, an attempt is made to look at the nose, the pupil is immediately depressed, the globe being pulled directly downwards by the action of the inferior rectus muscle.

If these conditions be fulfilled, and *they ought to be if the obliquity be confined to one eye*, we may rest assured that the ball is completely liberated. But we cannot always obtain this decided result. It sometimes happens—indeed, nearly always when *both* eyes are implicated—that the operation is as perfectly performed as it can be, and that still the patient has a slight cast when he looks with both eyes at an object placed directly before him. This we shall find to proceed from a concurrence of action of the inner fibres of the superior and inferior recti, aided, perhaps, by the obliques, which, when the squint has been considerable, have likewise become involved in its production. Be it observed, however, that there is no occasion to divide these fibres, since, if there exist no permanent obliquity in the other eye, this morbid action will cease in a day or two. But if any confirmed obliquity exist in the other eye, I have always found it best to operate on it also; on doing which, this vestige of the original evil has almost always instantly ceased, never to return. It appears that this action of the inner fibres, just described, is very feeble, and in a great measure dependent on the sympathy that subsists between the two eyes, since it is only capable of being exerted so long as the tendon in the other eye continues undivided. Were we to remedy the obliquity thus produced by dividing the inner fibres of the superior or inferior recti muscles, as has been recommended, the eye would be very prone to start forward, and impart an ungainly appearance to the individual; whereas, by operating on the other organ, we not only obviate the risk of this occurrence, but completely rectify both eyes; and should the eye first liberated be a little enlarged by the operation, we have it in our power to make both correspond in this particular.

Another test that the operation has been thoroughly performed is the capability the patient acquires of not only directing the pupil much more outwards than he could previously, but, if the tendon of the external rectus be free to act, of turning it much more outwards than natural. Even the decided indication already insisted on, viz. a total inability to move the pupil from the centre of the orbit horizontally towards the nasal canthus, may be frustrated by an adherent condition of the tendon of the abductor muscle. A little experience, however, teaches the surgeon how to ascertain, by sweeping the sclerotica carefully with his blunt hook, when the liberation of the eye is complete, without being obliged to rely upon the foregoing investigation, although he should never neglect to institute it, as he is thereby generally enabled materially to corroborate his judgment.

Of the Double Operation for Strabismus.

For the most part, as has already been shown, although there may apparently exist an obliquity in the axes of both eyes, it will, on a careful comparison of their capabilities, be found that the affection is much more marked in one than in the other; and that, on dividing the tendon and liberating completely the globe of the most faulty eye, the axis of the other, though for a few hours at first often rendered more objectionable, will soon become correct, and continue so. The previous obliquity in such case had resulted simply from sympathy, or, to speak more precisely, from the constant co-operation that subsists between the two eyes in all their movements, in order to render vision with two organs a single function. I conceive it to be quite possible, although I have no positive proof on which to found my opinion, notwithstanding the statement of Buffon and others, that strabismus convergens may assail both eyes at the same time. It is evidently, at its commencement, a spasmodic disorder, which attacks the internal rectus, and perhaps other muscles of the eye; and I can see no reason, although it may not be a usual law, why the corresponding muscles of each eye should not be simultaneously affected, especially when the distortion proceeds from functional derangement of the alimentary canal, or any other disorder capable of disturbing the nervous system generally. I have seen, as will appear by reference to the preceding parts of these communications, cases in which the internal recti have been simultaneously affected with paralysis, to the exclusion of the other muscles of the eye; why, therefore, may they not both be attacked with spasm at the same time?

Be this as it may, at all events it sometimes happens, when the defect is well marked, that the sympathetic influence it produces on the opposite eye, by long and active continuance, degenerates into a permanent shortening of the muscle, and corresponding degree of contraction and thickening of the sub-muscular cellular tissue, similar in every respect to that of the primitively affected organ; so that it becomes requisite to liberate the secondarily distorted eye also. If we neglect to do this, in the course of time, when the muscle first divided has formed a reunion with the sclerotica, a relapse of the original deformity may be induced in the eye that had been the subject of operation.

I am not aware that any person practised the double operation previous to myself, which I first performed more than two months ago; nor do I believe that it has been generally recommended by any but those surgeons who have had the opportunity of examining my cases. Such, however, has been the impression on these gentlemen, on seeing the perfection that may be thus obtained, that none have dissented from the propriety of the measure, and most of them have since adopted it whenever opportunity presented.

From the facts detailed in the former parts of this communication (Sept. 19th and 26th), it is evident that the second eye cannot be operated upon in all cases with impunity. We have seen that when the second eye is thoroughly relieved, the external recti are apt to assume an ascendancy of power; and when the patient looks at all outwards, to draw the eye so much to the external angle as to produce a very unpleasant leer, and at the same time to render vision double. So long as any bond of union remains between the adductor of either side and the sclerotica, however slight it may be, this untoward event does not happen: from which we may infer, although difficult to suggest a satisfactory theory to account for the fact, that the mutually controlling influence which proceeds from the intimate intercourse subsisting between the adductor branch of the third pair and the sixth nerve, ceases, in some instances, when the physical restraint of the two muscles is overcome, by dividing the tendons of both.

In order to meet this difficulty, then, although unable to see in what manner the adductor of the right eye, for example, should exert any physical control over the abductor of the left, the nervous communication which influences their consentaneous movements remaining uninjured, it occurred to me, in performing the operation on the second eye, to avoid destroying *completely* the physical restraint by which it is held in bondage, and thus to preserve what appeared to be requisite to obviate the undue direction of the eye outwards when the individual looked at an object placed at the side of him. I found the experiment successful; and out of more than sixty cases, I have never met with the same unfortunate result as that already recorded in the second portion of this communication.

In operating on the second eye, then, the great secret by which alone a fortunate and perfect result is ever to be secured, is to ascertain with the hook, before dividing the tendon, whether there exist any adventitious adhesions likely to steady the eye after the tendon is divided; and if so, to carefully preserve a sufficient band of these, to operate as a restraining power. If this be done, we shall find that the action of the abductor, that might otherwise have turned the pupil outwards, will just be sufficient to draw it to the centre of the orbit; and, in all the consentaneous movements of the eye, this undivided band will exert that restraint which is required to preserve a unity of action and correspondence of the axis of the two organs.

Pathology of Strabismus Convergens.

From what has already been stated in various parts of the present and three last portions of this communication, very little remains to be said on this head. The views that I entertain must ere this be familiar to my readers; still it will be requisite to recapitulate them, in order to notice those of others, and to enable us better to understand the next part of our inquiry, viz. the *causes of relapse.*

From whatever remote causes the disorder may proceed, and these are numerous, being both functional and organic, the first immediate step towards the production of strabismus is either spasmodic contraction, more or less permanent, of the adductor, and, in some cases, of the inner fibres of the superior and inferior recti, or loss of power in the abductor muscle. I have not met with a single case of congenital strabismus, though, in many instances, the deformity is reported to have supervened within a few days after birth. In by far the greater number of cases—for out of upwards of 400[*] I have only seen three to the contrary—a contracted state of the inner muscle obtains. This, in the first instance, is a mere spasmodic condition of the part, not by any means necessarily permanent, but it would seem it very soon becomes so; in which case the adductor muscle becomes shortened; and although capable of extension when the antagonist abductor acts, it still retains the eye turned somewhat inwards when the organ is quiescent. Should any inflammatory affection of the membranes of the eye supervene during the existence of this state of spasmodic contraction of the adductor, the submuscular cellular tissue is liable to be not only thickened, but rendered unyielding and adherent. When this change is established, even should the spasmodic condition of the muscle cease, the tendon will, of course, remain closely attached to the sclerotica, and be unable to resume its normal condition.

During the progress of this alteration in the character of the cellular tissue, as the eye is necessarily in motion, the opposite abductor being constantly called into action, the adhesions that take place between the sclerotica and the tendon of the adductor, and that would otherwise immoveably fix the eye in the inner canthus, become gradually elongated into bands, in the same manner as the adhesions which take place between the pleuræ, after pleuritis, become elongated by the constant action of the chest during respiration; or like those often met with, which unite the heart to the pericardium, and are the result of pericarditis. Now it is these bands of fibrocellular connection passing between the sclerotic tunic and the under surface of the muscle and its sheath, that in such numerous instances retain the eye in an abnormal position after the tendon has been divided, and render so many cases only partially successful. I have met with these bands very far back, even beyond the greatest diameter of the globe of the eye; and in two cases found them almost cartilaginous, and so unyielding that the patients were wholly unable to move the pupil out of the inner canthus. When a case presents itself in which these bands exist, we find that, after dividing the tendon, the pupil still turns somewhat inwards when the eye is quiescent, and that when the patient makes an effort to cause the two eyes to converge still further, by directing them towards the inner canthus of each, being deprived of the power of doing so on one side, by the division of the tendon, the effort is aided by the united action of the inner fibres of the superior and inferior recti, and the pupil is in consequence drawn either diagonally upwards and inwards or obliquely downwards and inwards;

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[*] It may be here requisite to state by what concurrence of circumstances I have had the good fortune and practical advantage of examining so many cases of this disorder, from whence, indeed, I have collected the *materiel* for the present series of communications.

After having operated upon between forty and fifty individuals in London, and assisted various of my professional brethren to an almost similar extent, I accidentally visited my friend, Dr. J. C. Williams, of Nottingham, who enjoys a high reputation and extensive practice as an oculist in that town, and for twenty miles round; as does also his cousin, Mr. John Northon Thompson, as an ophthalmic surgeon. The operation being new in Nottingham, these gentlemen were desirous of seeing it performed. On mentioning to other surgeons of the town their intention of collecting together a few cases for operation, many of them expressed a wish to be present, and kindly used their exertions to provide patients. The consequence was, that in the course of a few hours cases presented themselves in incredible numbers, and during the three days I remained, Mr. Thompson and myself operated upon upwards of 70. Ten days afterwards I revisited the town to examine the result of our practice, and not only had an opportunity of repeating the same extraordinary surgical feat, but had the advantage of examining about 150 cases that had been operated upon by my surgical friends during my absence, Mr. Thompson himself having relieved 96. Before finally leaving Nottingham on this occasion, I visited my friend, Mr. Douglas Fox, of Derby, who likewise, aided by his professional brethren, had collected a larger number of persons than could be operated upon during my stay. Since my return to town I have relieved upon an average three cases a day. I now avail myself of the opportunity of cordially thanking the professional gentlemen in Nottingham and Derby for the very kind manner in which they received me, and for the invaluable facilities they afforded me of obtaining practical information on the subject of these communications.

the direction which the eye takes in this respect being dependent on the comparative influence of these muscles and the site of the retaining force. A separation of this band usually liberates the eye, and completes the operation.

We are not, however, always to expect to find a fibrous interlacing of adhesions, such as I have just described, since this is the result of inflammation, and only to be met with in cases that have suffered from ophthalmia after the supervention of strabismus. In most instances the contracted tendon is all that requires division; but should we find the contrary, and learn that the individual never suffered from membranous inflammation of the eye, a little examination with the hook will detect the cellular tissue thickened and contracted: this change in its texture having gradually supervened on the subjacent connecting membrane accommodating itself to the shortened state of the muscle and its tendon, and the new position of the eyeball. When either of these morbid alterations of texture are fairly established, we may rely on it that nothing short of their complete separation will effectually liberate the eye from bondage.

This I believe to be the true pathology of the disorder, from having so frequently encountered the obstacles just related, and being unable to detect them in the sound and dead eye. When we carefully examine the submuscular cellular tissue in the recent subject, if no strabismus existed during the life-time of the individual, we find it to be so extremely delicate and yielding, as to convince us that it must undergo the changes here stated, otherwise it could never offer the resistance it often presents to the completion of the operation. Mr. Hocken, in some useful remarks on strabismus (published in the MEDICAL GAZETTE for Sept. 11th, 1840), has stated it as his opinion that strabismus often arises from hypertrophy of the adductor muscle, aided perhaps by atrophy of the adductor. Now, I am not prepared to assert that such a change in the development of the muscles of the eye never exists, though I do not believe it to be the general condition of the inner muscle in cases of this description. I can readily imagine, with Mr. H., that an increase of nervous influence, followed by hypertrophy, may attend the excessive employment of any of the orbital muscles, whilst their antagonists may become atrophied from disease; and that in this manner we might easily account for strabismus originating in imitation (if it ever does arise from this cause), habit, improper education of the eyes, long retention of the head in one position, disparity of vision, opacities of the cornea, &c. &c. &c.

But we find, from the general history of the disorder, in the vast majority of examples, that the obliquity invades suddenly, before any change such as hypertrophy can possibly have been established. In some cases the disorder is intermittent, and gradually becomes permanent, in others it would appear to be confirmed from the first. Were simple hypertrophy of the muscle the common cause, then cutting the muscle across would in every case liberate the eye; but those who operate extensively will find this far from being the case. Severing the muscle, in a great many instances, is only a small part of the operation.

Want of attention to this fact, I again repeat, is the main reason why we see so many persons only partially relieved.

If the bands, to which I have so often alluded, are left undetached, they form the ground work of a relapse of the distortion, by detaining the globe still tethered, until the cut tendon has time to form a new union with the sclerotica.

Causes of Relapse.

A sufficient length of time has not elapsed since the cure of strabismus by surgical means has been practised, to enable us to estimate the proporion of permanent success with which it is likely to be attended. When the operation is thoroughly performed, and only one eye has been originally affected, there does not appear much probability of any renewal of the disorder. The morbid consentaneous influence that might in the course of time have involved the second eye being no longer in operation, the temporary obliquity it derived from this source will soon subside, and both eyes remain sound; but if it should be found that both eyes were primitively affected by the same exciting cause*, or that the disorder which was at first only sympathetic in the second eye, has become permanent, then it is possible, even after operation, when a reunion has taken place between the divided ends of the tendon and the sclerotic coat, that the eye which was the subject of operation may in turn become again sympathetically implicated; though I should imagine never to so great an extent as previously. Relapse, then, being evidently dependent on the circumstance of both eyes having become permanently affected previous to operation, the proclivity to this event will of course be in proportion to the degree in which the unliberated eye remains implicated.

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* Presuming that both eyes may be simultaneously affected.

Even although no union should ever again take place between the divided muscle and globe of the eye, still I conceive it quite possible that the other muscles, being under the influence of the same consent or sympathy already alluded to as subsisting between the eyes, in order, when practicable, to render vision with a double organ a single function, might be gradually involved in a conjoint morbid performance of their duties, and by the force of involuntary practice might ultimately so accommodate themselves as to perform functions for which they were not originally destined.

Another source of relapse, of a much more simple nature, though by no means of frequent occurrence, is the contraction of the new or substituted parts at the inner canthus of the eye during cicatrization, when the conjunctival folds and loose cellular tissue have been unnecessarily removed. A few days ago I remedied a relapse of this description, by again freely dividing these: the eye was instantly restored to its proper situation.

The possibility of cicatrization again limiting the movements of the eye, though a rare occurrence, is another, but, perhaps, as it can be easily obviated, a trifling objection to unnecessarily destroying any of the outer coverings or appendages of the eye.

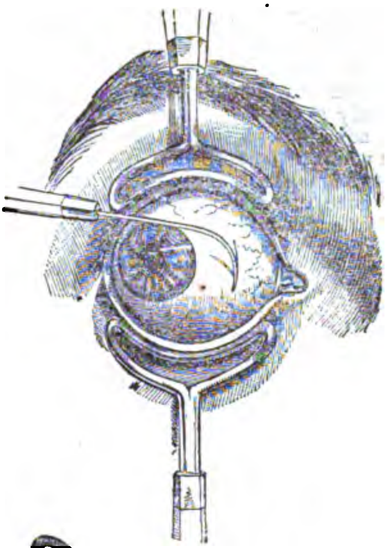
When strabismus arises from any defect of vision in one eye, and the distortion has been produced by the efforts of the patient to accommodate the faulty axis of the diseased eye, we may expect, as the strabismus is in such case a resource of nature to obviate the difficulty, that, as soon as the reunion takes place between the divided tendon and the sclerotica, and the muscle is again free to act, the original efforts will be renewed, and the obliquity recur. For the most part, strabismus is the cause of defective vision, and on its removal the sight improves. When, therefore, we find the converse of this fact, and the patient complains that his vision is in conseqnence become more confused, we have reason to apprehend (if the previous history of the case confirm the opinion) that we have operated on an example of the above description, and that a relapse may ultimately occur.

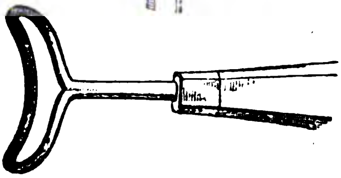
Fortunately, on the re-establishment of strabismus, the vision would be restored to its former condition. Inquiries, then, of this description, should be very carefully instituted before the operation can be recommended. In fact, the proclivity to relapse will very much depend, in numerous instances, on the nature of the remote cause, and on the probability of its persistence after the eye has been set at liberty. From what I have seen, however, I do not imagine that relapses will be of frequent occurrence; on the contrary, I am of opinion they will be very rare. Several cases of alleged relapse that have been shewn to me, were not returns of the affection, but only imperfectly performed operations, or the result of mere sympathetic connection with the other eye. A few of these cases I have myself since remedied by operating on the second eye, which had erroneously been regarded as not implicated, on the principle that "squinting never affects both eyes simultaneously." Mr. Elliott, of Carlisle, I perceive by last week's Lancet, has been led to practise the same proceeding, and very judiciously entitles his communication "Division of both Internal Recti in Squinting, in preference to that of any other muscle, when the division of one adductor only is not instantly and completely successful." The difference between Mr. Elliott's practice and my own is, that I allow a little time (three weeks or so) to elapse between the operations, not only to afford the eye presumed to be unaffected the opportunity of correcting its obliquity and thus to satisfactorily decide the question whether it be itself really implicated or not; but also to enable the muscle, first divided, time to form a new insertion into the sclerotica. If this latter direction be not attended to, it will be found that one or both eyes will often turn unduly outwards when the abductors are called into contraction. During the interval between the two operations, as soon as ever the patient can bear to use his eye, and this he can generally do within 24 or 36 hours after the tendon has been divided, it is desirable to place a soft compress of lint and a bandage over the *sound* eye, to prevent its morbid movements from influencing the one that has been the subject of operation. If we neglect this precaution it is possible that the divided tendon may form a second attachment too near its former insertion, the eye being inclined unduly inwards during this period. When the sound eye, however, is covered over in the manner suggested, the one that has been liberated preserves its proper position in the centre of the orbit, and the reunion between the cut tendon and sclerotic tunic takes place considerably posterior to the original site, as the muscle, it may be presumed, shrinks in some degree when set at liberty.

On the Operation for Strabismus Convergens.

On this subject I have very little to say that has not already been stated in the preceding portions of this communication. The operation I perform is that suggested by Mr. Bennett Lucas, and which I believe to be decidedly the best in every respect.

When it is requisite to keep the eyelids seperate by any mechanical means, I employ the double speculum proposed by my friend Mr. John Northon Thompson, of Nottingham, and which, with his permission, is here represented.





It is the best instrument of the kind I have seen, and has the advantage of enabling us to hold the eyelids open in spite of every spasmodic effort to close them, without creating any pain. It has the further advantage of enabling us to get at the eye freely, the hands of the assistant being very far removed from the site of the operation. I cannot imagine the necessity of putting the patient to the pain of depressing the lower eyelid by means of artery forceps, as recommended by some surgeons; neither have I ever found it necessary to fix the globe of the eye by means of a sharp hook.

The patient is desired to direct his eye outwards; the conjunctiva is then to be pinched up by means of a fine forceps, and cut across with a pair of strong scissors, nearly midway between the edge of the cornea and the semilunar fold of the membrane. This opening should be made freely, and care taken in making it to completely divide the subconjunctival loose cellular tissue, so as to fairly expose the tendon from its upper to its lower margin.

The blunt hook is then to be inserted under it, so that when raised and drawn to the external opening, a small portion may be snipped out of it. Should the pupil, when this is done, be found not to occupy its proper situation, the hook should be introduced again, and any bands of fibro-cellular tissue that still fix the eyeball should be brought to the external opening in the same manner as the tendon has been, and divided; this being repeated till the eye is perfectly liberated. The only point in the opera-the second eye, has become permanent, then it is possible, even after operation, when a reunion has taken place between the divided ends of the tendon and the sclerotic coat, that the eye which was the subject of operation may in turn become again sympathetically implicated; though I should imagine never to so great an extent as previously. Relapse, then, being evidently dependent on the circumstance of both eyes having become permanently affected previous to operation, the proclivity to this event will of course be in proportion to the degree in which the unliberated eye remains implicated.

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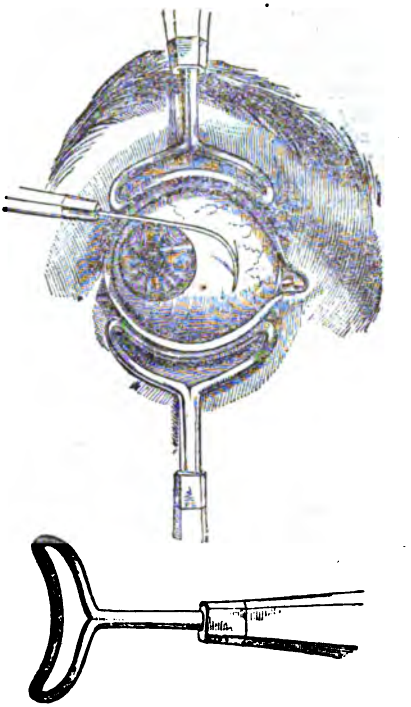

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Treatment after the Operation.

If the operation be performed neatly, and with address, no more of the conjunctiva being cut or displaced than is necessary for the purpose of cutting the tendon, little or nothing requires to be done afterwards. A fold or two of lint, moistened with cold water, may be applied over the closed eyelid, and retained there for a few hours, to obviate as much as possible ecchymosis, and prevent inflammation, which latter, however, very rarely supervenes, although the ecchymosis is sometimes considerable, especially if the conjunctival tunic have been unnecessarily raised, so as to allow of infiltration of blood into the cellular tissue under it. On the second day we shall find a considerable deposition of lymph from the sub-conjunctival membrane uniting the cut edges of the conjunctiva, and be led, perhaps, from its abundance, to expect that a tumefied cicatrix will result, but such is seldom the case. In the course of a short time this deposition gradually disappears, and, along with it, the ecchymosis.

In order to hasten both these results, we may recommend, after the third or fourth day, a slightly astringent or stimulating solution to be dropped into the eye twice or thrice a day. From two to six or eight grains of sulph. zinci dissolved in an ounce of rose water answers very well for this purpose. When the conjunctiva has been inadvertantly cut away, the reparative process is often very tedious, and the cicatrization is retarded by the exuberant growth of mushroom-like granulations. These may be removed by the daily use of sulphate of copper, or, what is much better, and far less painful, we may allow them to grow till they are large enough to be cut away, and then remove them by means of fine forceps and scissors. They often bleed freely, but their removal, as they are very insensible, is unattended with pain. I used to apply blue stone to hasten the disappearance of the reparative lymph, but I found that the irritation it created kept up the turgescence of the blood-vessels, and rather retarded than hastened the desired absorption.

The majority of cases are perfectly cured by this plan of treatment in the course of a fortnight or three weeks, and, during this period, never suffer any inconvenience beyond that which arises from ecchymosis, the eye looking blood-shot, turgid, and glistening.

Very often during the performance of the operation, whilst the tendon is being divided, the patient complains of pain in the forehead, similar in degree and kind to what would be produced by pressing the finger very firmly on the part. This uneasiness sometimes remains for several hours afterwards, and is best relieved by warm fomentations to the eye.

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* The hook I use is a blunt-ended flat hook.

In a few instances I have found the same sort of sympathy to be excited in the stomach that so frequently supervenes after couching, and the patient has been troubled with vomiting for twelve hours after the division of the tendon. When this symptom happens we generally find, on inquiry, that the patient has experienced similar attacks of vomiting from trifling causes on former occasions, and is, at times, the victim of the ordinary forms of hysteria. Under these circumstances effervescing salines or opiates may be tried, but they have not in my practice been of much use. The latter remedy has generally aggravated the distress, by occasioning vertigo or headache, without relieving the symptom for which it was administered. Indeed, temporary confusion or giddiness of a few hours' duration, is no uncommon occurrence after the operation, without the assistance of a narcotic. Time and tranquillity appear to me to be the best remedies; these annoying symptoms usually ceasing after the first sound sleep, and being in the meantime much mitigated by keeping the patient quiet, and in a dark room.

Should membranous inflammation supervene, it must, of course, be treated by blood-letting, leeches, warm fomentations, active purgatives, and the other ordinary means appropriate in simple inflammation of the textures affected.

14, Langham Place, Regent Street,
Sept. 24, 1840.

POSITION OF THE PLACENTA.

To the Editor of the Medical Gazette.

SIR,

IN a late number of the MEDICAL GAZETTE I have seen a notice of the investigation I have been lately engaged in at the Coombe Lying-in Hospital of this city, respecting the position of the afterbirth in the womb in the different stages of gestation; and the result of that investigation has been so fully put forward therein, that I consider it unnecessary to enter here into any further detail of it.

As stated in that notice, the observations I published on the subject were subsequently impugned, and objected to, in the Dublin Medical Journal, by reviews from the Brittain Street Lying-in Hospital; and the last of these reviews contained a statistical table of one hundred cases in which the position of the afterbirth is stated to have been observed at that institution, with results so different from those I mentioned as having occurred at the Coombe, that it is put forward as conclusive against me; altogether subversive of the correctness of my statement in this respect, and the opinions arrived at therefrom.

On the appearance of this last review I tendered a reply to it to the Editor of the Dublin Journal, which, after some hesitation, was received by him, on conditions that it should be published in two separate parts; one in the following number, and the other in the next succeeding one, and which, on my part, was acceded to. Accordingly the first appeared in that for July last, but the remainder, which contained the refutation of this statistical table, as well as of other points insisted on, and which was forwarded to him on the coming out of the July number, was, after some weeks, returned to me with a letter refusing it a place in the Journal, and assigning as a cause "that it exceeded the limits the periodical could give it." It would print to about eighteen pages of it!!

In the notice you have been pleased to take of the subject, this statistical table is considered as making very much against my opinions; and as matters now stand, the impression must be, that on my part I looked upon it as unanswerable; for the Editor of the Dublin Journal not only refused the publication of the continuation of my reply, but likewise the request I made of him when he so refused, namely, of noticing in his journal that I had tendered it to him, and that he had declined it for the above reason. If it would not, however, be trespassing on the Gazette, I think I shall be able to show, in a few sentences, that this table is altogether erroneous, and as an interesting point in physiology is in some degree involved in it, may I be permitted to hope that with you it will not be refused? The cause of science I am certain will not be unpalatable to any of the friends of the LONDON MEDICAL GAZETTE, nor the vindication of truths in any way inconvenient to them.

I believe it is a matter fully admitted, that the ovum first attaches itself to the uterus in the immediate neighbourhood of the Fallopian tube it traversed; it is retained there, when it enters the womb, by the part of the decidua which covers these uterine apertures, and there the placenta is first formed.

The substance of my remarks, then, upon the subject in question, rests upon two points: the first, that at the period this attachment takes place the uterine aperture of the tubes, and consequently the newly-formed placenta, is at or near the fundus of the womb; and the second, that at the close of gestation, they are, and particularly the latter, low on the posterior wall. I have stated in my original paper that the membranes, when delivered, will be found to be so marked as to enable us to ascertain this second point, and that according to their testimony, I found it (the placenta) there to be situated, as above stated, in 96 or 97 times out of the 100.

Both of these data, however, had been denied by these reviews, and the object of this statistical table is, to prove by observation the incorrectness of my second position—to show that it was totally at variance with facts. I shall now proceed to lay before you my objections to it.

In order to this I shall first state the physiological views upon which this table has been constructed at the Brittain Street Hospital. I shall next give my reasons for considering such views to be inadmissible; and then, by comparing its results with those coming from the observations of admitted authority upon these subjects, I shall show such a vast discrepancy between them, that I think but little hesitation will exist as to the extent of credit to be attached to the testimony of this document.

The table is based on the supposition that the afterbirth moves with such uniformity from its position *in utero* to its birth and final deposition upon the bed, that simply by inspecting this latter (its position on the bed) we can at once tell what part of the womb it was attached to. In fact, that the expelled placenta, as it lies on the bed, observes a position so corresponding with its former uterine attachment, that, with very few exceptions indeed, it may be regarded as an infallible index thereto.

Before, however, we proceed to examine the merits of this doctrine, I have to state, that it is now admitted the fundus is not the position of the afterbirth. (I shall take leave to say—*at the close of gestation*). It is found by examining the secundines, that its (*then?*) place on the membranes, relatively to the aperture in them made by the escaping child, is somewhere in the vicinity of the mouth of the womb: there were but three exceptions to this in the hundred cases recorded in this table. The principle, then, upon which the table is constructed we are informed is, that the afterbirth, perpendicular, or upon some of the sides of the womb previous to its detachment, is so separated therefrom, that its superior section is detached momentarily earlier than the inferior. That this superior section is then thrown on the wall of the womb opposite that from which it has been just detached, the inferior preserving its position. By this it is said that the entire of it, when fully detached, assumes a somewhat horizontal or antero-posterior direction, in which position it continues after, in its progress through the pelvis and os externum, and finally is deposited on the bed observing the same bearings. The membranes, however, are firmly attached to the fœtal surface of the placenta, at least some of them; those, therefore, which pass off from the lower border of it must be short, inasmuch as they are near the mouth of the womb, where the opening is found in them as above stated, while those which pass from the superior border rise up, line so much of the womb as is above the placenta, then the fundus, and finally pass down lining the opposite wall, unbroken, and must be consequently long; in other words, the long part of the membranes is on the side of the womb opposite that to which the placenta is attached; the short part of them on the same side with it.

Assuming, then, all these premises as correct, the latter of which no doubt is, we are now informed of their application, in the way of discovering by them the place in the uterus the placenta was attached to. If, for example, the placenta be on the posterior wall, the superior part of it being first detached and thrown on the anterior wall, the inferior part continuing at the posterior, it thus, as stated, assumes an antero-posterior direction, and finally is expelled in that exact position, the superior part, when lying on the bed, pointing towards the pubis, the posterior backwards towards the perineum. The consequence of this will be, that the longest part of the membranes will *then* have a pubal aspect, the shortest a perineal. The reverse of all this of course will happen when the placenta is on the anterior wall; the long part of the membranes will point backwards towards the perineum, the short part forwards towards the pubis: when on the sides, corresponding effects will follow. These preliminaries being all settled, we are told there is nothing easier than to ascertain, by them, where the placental attachment was in the womb: we have only to look where the long part of the membranes goes off from the mass as it lies on the bed; if that be from the pubal aspect, it lay on the back; if from the perineal, it was affixed anteriorly; and, as in a considerable number of the hundred submitted to this test at the Brittain-street Hospital, (we shall presently see 43,) we are informed they went off from the perineal: this is assumed as proof unquestionable, in the language of the review, "of how egregiously mistaken I was in my hypothesis that the placenta was to be found 96 or 97 times out of the 100 posteriorly attached." It is to be observed that the uterine position of it was, as we are informed, in all cases ascertained before the birth of the child by the stethoscope, and the correctness of the diagnosis verified afterwards by the above test in every individual instance, and it would appear without any exception whatever.

Against this doctrine, however, I beg leave shortly to submit the following objections:—First, although the earlier detachment of the superior portion of the placenta is stated in the critique as *quite obvious*, I by no means assent to this postulate. I have laid grounds in my paper for supposing, that uterine contraction is very much conducted on the anterior wall of the womb until the child is expelled; and if that be the case, I cannot see how such a mode of detachment is *so obvious;* on the contrary, I should think the entire of the placento-uterine surface would be acted on at once: indeed, I think this must be so, no matter how the contractions be; in which opinion I am strengthened by the well-known fatal consequences resulting from partial detachment. But, admitting the superior portion to be first detached, by what means is *it* alone thrown to the opposite wall of the womb? or why shall not the same thing occur to the inferior portion, when it in its turn comes likewise to be detached? Will not *this* then move to the opposite wall, or what is to prevent it? Again, supposing all these granted, I contend the capacity of the womb is by no means such as to admit the advance of the superior section of the placenta to take place to such a degree as to permit the mass to assume the position necessary to sustain this argument. If we look to the table itself, we shall find the greater number of these placentæ measured seven inches in length. Let us now recollect that the thickness of the walls of the womb, anterior and posterior, after the child is born, is upwards of one inch each; and we shall find that, in order to allow these seven-inch placentæ to assume the inclination contended for, particularly when we consider their soft pliant nature, that the diameter of the womb must, at least, be nine inches after the child is expelled. How mistaken, consequently, must all writers on midwifery be, who aver that the size of the womb then is about that of a fœtal head! How different the doctrine at the Brittain Street Hospital. If such were the fact, the womb must diminish in no degree whatever by the expulsion of the child. It is also almost needless to remark, that when it continued in so patulous a condition, fatal hæmorrhage must have resulted in all cases, at least where the placenta measured seven inches. Of this no mention is made in the review; but it is impossible it could be otherwise. One thing is very remarkable, connected with this table, that in upwards of thirty of the cases an hour and more elapsed before the placenta was expelled: in these certainly death from hæmorrhage must have happened a long time previous thereto, and, notwithstanding subsequent uterine action, went on so as to complete the evacuation of the secundines. This I should say was a strong exemplification of what I spoke of in my original paper on the subject, viz., that, even after death, the womb is sometimes known to act so as to expel the fœtus, were it not that here death having ensued from hæmorrhage, its enervating effects must have been produced on, and so weakened the contractile tendency of, the uterine tissue.

The truth is, the placenta comes down from the womb edgewise, which a fact well known proves: I mean, when it is partly in the vagina, and partly in the womb, one half in either chamber, and which could not occur if it advanced in the antero-posterior or horizontal direction. When detached, its weight protrudes it into the cyst of membranes, the womb acting on it from its substance and firmness before it acts on their delicate tissue; it, consequently, advances, investing the membranes, and covered by them, and it is this which has been mistaken at Brittain Street for the advance of the fœtal surface.

With respect to the statement that it proceeds through and from the womb, preserving a position when fully expelled and lying on the bed, so unerringly corresponding to that of its uterine attachment, that by inspecting the former in the way mentioned we may at once learn the latter, a number of arguments at once present themselves to the mind against it: I shall, however, select but a few. The varied degrees of uterine action with which it is propelled to its birth, and, consequently, of the time that elapses previous to its completion, must I think affect this much. The well-known irregularity with which the womb now acts must likewise influence it very much. For example, suppose it were attached anteriorly or posteriorly; if it were at once in all cases detached and expelled, some semblance of reason might probably then be attached to this doctrine; but if after delivery it were not expelled for an hour or two (*see thirty of the cases in the table*) it must unquestionably gravitate to the side the patient lies upon (of the truth of this I have satisfied myself in numbers of instances,) and so mar the regularity necessary for the purpose. This must undoubtedly occur if the womb be so patulous and uncontracted as to admit of the reclining position contended for; and how much the more will not this tendency to gravitate to that side be facilitated, by the bleeding which must ensue from such an uncontracted state of the organ. Again, we know that the placenta is the first of the secundines to be expelled, the membranes coming after it; these latter then restrain, in a degree, its advance, and so unequal at this time is the uterine action, that sometimes the restriction will be on one part of them, and sometimes on another; thus permitting one time one portion of the placenta to be extruded, while another portion of it is confined, and sometimes another. Need I insist how this must affect the point under discussion? The part which is free being projected forwards, while that which is reined in as it were by the tense strip of the membrane, must be retained close to the person of the patient, thereby causing the position of the placenta on the bed to be influenced, not by that of its uterine attachment, but by whatever part of the membranes chance retained with the womb. I believe we need not say more as to the physiology which constructed this table. A few words on its workings.

I contend for it this is all wrong: the stethoscopic ear and seeing eye would appear to have verified each other. As I differ from them, however, at Brittain Street, as regards the correctness of the evidence which it gives, the matter will best be decided by an umpire between us, and for that end I shall name Naegelé as a fit and proper person.

Now Naegelé directed his attention to the very matter under consideration, in six times the number of cases as those observed at Brittain Street—600 cases, *(see his obstetric auscultation)* and the results of his inquiries compared with those from the Dublin Hospital, exhibits this enormous discrepancy: while with him the placenta occurs in the average of but twice in the hundred on the anterior wall, the Brittain Street table makes it to exist *forty three times.* His remark is, that in the 600 cases "the placenta was found to occupy the anterior wall of the uterus, *in thirteen instances 'only.'*" Thus, in six hundred cases, the discrepancy between them would be in a proportion of 13 to 258!!! I submit that such an enormous discrepancy could only be the result of a similar description of error on the part of either of these observers. The profession, however, will decide which was most likely to have fallen into this error.

But there is another matter which I

hold operates greatly against this table and is calculated to create much doubt as to its credibility. We have, I think, already seen that it proves too much for the purposes of the critique with respect to the frequency of the anterior position, which in my papers or thrice I contended for occurred but twice in the hundred; and I think we shall find that the stethoscope has been likewise quite too successful in it, rather incredibly so. Naegelé informs us in the work already cited, p. 80, that the souffle was so diffused and uncertain, in some of the cases he submitted to it, that it was *impossible* to determine the position of the placenta in them by the stethoscope; and he further informs us that this impossibility occurred in a proportion of, *thirty* in the hundred, whereas it would appear that no such difficulty was by any means experienced at the Brittain Street Hospital. In not one instance did they fail there in foretelling its place by means of it, and so *infallible* was the ear *in all*, that it would appear the prognosis was subsequently verified by the test of the secundines, conducted on the principles above stated,in every individual instance Again, I would say, either observsr must be very much in error as regards this, and, as I think, general opinion will bear to the side of Naegelé. I, from all these considerations, would submit that this table of statistics, which, we are informed, was "laid before the profession, in order to set all arguments at rest on this score, and to prove how egregiously mistaken I was in my hypothesis" (the very great unfrequency of the anterior position), has failed altogether in accomplishing this object. It occupies near eight pages of the *Dublin Journal of Medical Science*.

I have above stated that according to this table, the after-birth was found forty-three times in the hundred on the anterior wall. In the paragraph immediately succeeding it, in the *Dublin Journal*, it is stated as occurring there but twenty-five times; however, weare likewise informed that in eighteen other instances it was below the Fallopian tubes to the right or left side. Now in the body of the review, p. 32, it is said, "the Fallopian tubes are considerably in advance of the pregnant womb." This statement, no doubt, is quite wrong; they are very much posteriorly. (See Hunter and Cloquet's plates.) However, such being the opinion at Brittain Street, it is clear that these eighteen were there considered in advance of the womb, not at the sides; they must, therefore, be added to the above twenty-five, and thus the placenta would be in front of the womb in forty-three instances. Dewees is quoted as authority of the anterior portion of the tubes in advanced pregnancy, at p. 89 of his work. However, I believe this is also a mistake respecting him; at least I could not find it.

The results of Naegelé's remarks were as follows, on the 600 cases:—

At the sides of the womb,	379	
Undeterminable	180	
At the fundus	7	
Anterior wall.	13	*only.*
Over the os ùteri	11	
Calcareous deposits. . . .	10	
	600	

This account shews the greater number capable of being diagnosed by the stethoscope to have been laterally to the right or left side, which, at p. 78, Naegelé denominates "the ordinary position of the placenta," and which, I submit, corresponds with the view I have taken of the subject. Naegelé says this position is in consequence of the vessels of the womb being greatest at the sides than elsewhere. I would, however, suggest as a reason for it, what I have already stated in my paper. The original formation of the placenta takes place at the orifice of the tube the ovum traversed, which is *then* at or near the fundus. At the full period of gestation, however, the tubes have sunk posteriorly and laterally about one-half on the uterine tumor (Hunter and Cloquet's plates). In this movement the attached placenta must of course participate, and thus it is that it is found there then. If that part of the womb be best supplied with blood, the effect of this change will be the more complete, as it will bring the full-grown placenta where it will be best supplied with it.

"I believe I may safely say that the *anterior* position of the placenta is a matter of the rarest occurrence; for although it was found forty-three times in the one hundred, at the Dublin Brittain Hospital, or even twenty-five times there affixed, Naegelé informs us the average is but *twice* in the hundred; and his account, we may, I think, adopt as the correct one.

Now I would contend for it, that there must be some reason why nature has in a measure excluded it from this position, and also that of the fundus (it was found by him, in the latter position, but *once* in the hundred); and I would submit that this is in consequence of the expansion of the womb taking place in the greatest degree in these parts of it. Were the afterbirth here attached, it is evident that the growth of the two organs would not correspond; that of the womb would exceed that of the placenta, and disturbance of the function of the latter must be inevitable, with its consequences on the mother and child; but placed as it is, ***laterally and posteriorly***, it is on a part which increases in a ratio that is adapted to the placenta only, while the increase of the anterior and fundal department is reserved for that of the child.

I have stated in one of my papers on this subject, that it is probable some of those cases of abortion which take place without any assignable cause, may result from malposition anteriorly; and from some opportunities I have had I am rather strengthened in this opinion. The view I have taken of this subject also leads to the inference that there is some part of the womb where alone the placenta can be safely lodged, which the above testimony of Naegelé, and the results of our investigations at the Coombe, I think goes strongly to establish; and I would further say, that it may lead to facts connected with the doctrine of accidental hæmorrhage, so ably handled by Rigby, which may throw much light on the pathology of this affection. The extensive opportunities afforded for observation on these matters at the Coombe Lying-in Hospital, have suggested some reflections connected with this latter, which I may take leave to submit on another occasion.

In my paper I have suggested that the posterior position of the tubes, accompanied by the placenta, at the close of pregnancy, can only arise from the anterior wall yielding more than the other parts, and thus chiefly supplying the expanding womb; and which has been explained in the notice lately taken of it in this periodical, on the supposition that the pressure of the growing child anteriorly loosens out its substance there, and so prepares it to contribute readily to this expansion, which obviously cannot take place in other parts; and the lateral position of them I have accounted for, on the grounds that the womb between them enlarges just sufficient to accommodate the increasing placenta. Such being the case, the placenta attached at the tube will extend upwards as much as downwards, and backwards as much as forwards, in its growth; and thus, though lateral, be likewise posterior, and low on the womb at full time. I have urged that its increase cannot take place by all parts contributing thereto, inasmuch as in that case the fundus at the birth would be the fundus of the first month, would rise up uniformly all through, and the placenta at the former period be there found, which it is not; and I confess I am unable to account for the change of position which the tubes and the placenta undergo, unless on the grounds just stated.

In a future communication I shall state how certain marks on the membranes will enable us to ascertain the information required on this point.

I am, sir,
Your obedient servant,
Hugh Carmichael.

Dublin, Sept. 25, 1840.

CONSTIPATION CURED BY THE APPLICATION OF COLD.

To the Editor of the Medical Gazette.

Sir,

Should you think the following case sufficiently interesting, I should feel obliged if you would insert it.

Your obedient servant,
J. Whitehead.

**Oxford Street, Manchester,
Sept. 29, 1840.**

Mr. —, of B. C. farm, is upwards of 60 years of age, and has in general been in possession of good health, with the exception of a little uneasiness now and then arising from a constipated state of the bowels, for the relief of which he has occasionally taken senna tea and Epsom salts. His bowels not having acted for two or three days, he took his usual dose of opening medicine, which produced no other effect than severe griping. The medicine was several times repeated, and rejected as often; the belly became tense and painful, and a feverish state of the system supervened. Medical advice was obtained towards the end of the fifth day, and the usual remedies prescribed; such as pills of calomel and colocynth, and a mixture containing sulphate of magnesia with infusion of senna and jalap: castor oil, croton oil, and several other powerful purgatives, were given, but without the desired effect. The belly was repeatedly leeched and fomented. Clysters containing castor oil were administered in large quantities, but without any beneficial result. Croton oil, turpentine, and tobacco, were all fairly tried, and produced no effect except sickness or syncope. There was no hernia. The abdomen greatly increased in size and tension; the tenderness somewhat diminishing, and alarming symptoms of sinking manifested themselves, the pulse becoming small and feeble, the tongue dry, and the voice weak and tremulous. We were leaving the patient in this condition on the tenth day, when I suggested to my friend, who had charge of the case, that the application of cold water to the abdomen might prove of some service. We immediately returned to the house, and ordered that a bucket of cold water from under the ice (it was then the end of November, 1836) should be carried into the room. The old man feebly asked what we intended to do with him now, and was given to understand that the belly was to be fomented again. That the deception to him might be complete, a jug of boiling water was also ordered. The abdomen being fully exposed, and some of the bed-clothes carelessly thrown over his face, the ice-cold water was suddenly applied by means of a large roller towel, doubled up to the proper size. The shock, no doubt, was terrible enough. With all the energies that remained in him, the patient screamed out, "Oh dear! you are killing me! you are killing me!" Several towels were applied in succession in the same manner, at intervals of about a minute. The beneficial effect was almost instantaneous, for during the time that the first towel remained on the belly the tumefaction began to subside, and in four or five minutes became amazingly reduced. The patient now expressed a wish to get out of bed, which he was assisted to do, and had a very copious evacuation of dry hard fæces, and two motions more before we left the house. By the aid of a little medicine the bowels were soon restored to their healthy condition, and the patient speedily recovered.

ANALYSES AND NOTICES OF BOOKS.

"L'Auteur se tue à allonger ce que le lecteur se tue à abréger."—D'Alembert.

Observations on the Diseases incident to Pregnancy and Childbed. By Fleetwood Churchill, M.D. &c. Dublin and London, 1840. 8vo. pp. 463.

Although most works on midwifery contain a brief survey of the nature and treatment of the diseases incident to pregnancy and childbed, the volume before us is by no means a useless addition to the medical catalogue. It contains a condensed and clear practical account of the diseases referred to, which the student and young practitioner cannot read without improvement; while, at the same time, from the numerous references collected by the author to foreign and English authorities, he who is inclined to dip deeper into the various subjects which are discussed, will be saved the labour of personal research by referring to Dr. Churchill's foot-notes. The following are the contents of the work:—Diseases incident to pregnancy; diseases of the genital organs in pregnant females; disorders from sympathetic irritation; disorders of the circulating, respiratory, and nervous systems; disorders of the mammæ; disorders from mechanical pressure; diseases incident to child-bed. Upon all these subjects Dr. Churchill gives a great deal of very useful elementary information, which, as far as we know, will not be found in any other single work. He purposely adheres to matter-of-fact statements, and avoids the discussion of doubtful theories and speculations: hence the value of his work to students and young practitioners; and to those who require information upon the various branches of obstetrics above enumerated, we can conscientiously recommend Dr. Churchill as a safe and useful guide.

MEDICAL GAZETTE.

Friday, October 2, 1840.

"Licet omnibus, licet etiam mihi, dignitatem *Artis Medicæ* tueri; potestas modo veniendi in publicum sit, dicendi periculum non recuso."
CICERO.

THE MEDICAL REFORM BILL.

WE have obtained a copy of the "Medical Profession Bill," prepared and brought in by Mr. Warburton, Mr. Wakley, and Mr. Hawes[*]. A very short account of it will at once suit best our present convenience, and convey to our readers all that can immediately interest them in its provisions. Its object is to add, if possible, another to the existing seventeen licensing bodies; and, of course, the hope is, that it may effect that which the London University has signally failed to do—the swamping of all the medical institutions that have the fault of being older than itself. We by no means regard our existing institutions as free from fault, and some of them, particularly the College of Physicians, we look upon as open to very grave objections,—but the reform must come from some wiser heads and more candid minds than those possessed by the honourable member for Bridport and his associates. Really, if it were not fraught with mischief, it would be very amusing to see legislators thus trying their hands at College-building; setting up one, and when that does not quite suit their purpose, laying the foundations of another on some more promising scheme; and talking of their patriotic economy, and their regard for science, all the time that they are burdening the country with the maintenance of their useless offspring, and rendering the profession ridiculous by their perpetually changing schemes for its management.

The present is termed, "A bill for the registration of medical practitioners, and for establishing a College of medicine, and for enabling the fellows of that College to practise medicine in all or any of its branches, and hold any medical appointments whatsoever, in any part whatsoever of the United Kingdom." It is fairly divisible into two parts, relating respectively to the registration, which it is proposed to make compulsory on all medical practitioners, of whatever kind or dignity of diploma, and to the establishment of the new College, in which those only who are inclined to take part in the election of its officers need have any interest. With reference to the first of these objects, it is (if possible) to be enacted that, after 1842, a "medical registrar" is to be appointed in each of the three capitals of the kingdom, to whom the present registrars of births and deaths (who will thus enjoy the well-associated and comprehensive function of supervising all the births, deaths, and doctors), are to act as sub-registrars. Through the medium of these latter, every practitioner will furnish each year to the chief registrar a schedule of his name and domicile, the branch of the profession in which he practises, and nature and dates of his qualification, to be signed and returned on or before the 31st of March.

In return for the trouble of making these "Medical Practitioners' Returns," every practitioner is to be annually taxed, to an extent not mentioned, for the maintenance of Mr. Warbuton's faculty, and for the formation of a Medical Registry Account, for the improvement of medical education. The registers of licensed practitioners are to be printed and published every year. They will thus form a useful list of all the practitioners throughout the kingdom, and of the qualifications of each, which it will undoubtedly be advantageous to possess for many other purposes than that which is contemplated in the bill, namely, the election of the officers of the new faculty.

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[*] What is the reason for which, though these three names are put on the back of the Bill, it is called in the Lancet of last week only Mr. *Warburton's* Medical Reform?

But in addition to the register of qualified or licensed medical practitioners, there will also be one of those who practise medicine in their capacity of chemists and druggists, or who practise it without having even that evidence of their fitness; and this register it will be left to the Home Secretary of State to publish or keep secret, as he may think fit. It will be seen by this that countenance is in future to be given to all who choose to practise medicine, however complete their want of fitness may be; and although in subsequent clauses it is to be enacted that only those who are qualified to practise by some license or diploma shall hold any public or parochial medical appointment, or charge for their professional attendance, yet there is not proposed any means whatever of discouraging the vast number of self-constituted practitioners (chemists, quacks, and others,) who at once disgrace the respectability, and diminish the pecuniary profits, of the legalized members of the profession. On the contrary, a certain amount of encouragement is given to them, by their being distinctly recognized as practitioners, although placed in a separate class. Whatever may be thought of the other provisions of the bill, this cannot fail, we imagine, to meet with general disapprobation: if there be one point on which all the members of the profession are agreed, it is that their diplomas, by whatever faculty or corporation they are granted, should, in addition to the honour they confer, have some actual advantages; but, were the present bill passed, quacks would be more nearly than ever placed on an equality with the authorized practitioners as well of the new as of the older faculties.

The registration, we have said, is to be compulsory. After July in some unknown year, no unregistered person, even though diplomatized or licensed by any existing body, will be allowed to act as a medical practitioner in any part of the united kingdom.

The register of qualified practitioners, in addition to the value we have admitted it will have as a list and description of all the legalized members of the profession in the kingdom, is also intended to serve the less important purpose of a list of the electors qualified to vote for two-thirds of the members of the councils of the new college: and here we enter upon the second part of the bill. Its scheme might be briefly described as that of an experiment to see whether a system of general election can be worked, and is sufficiently desired by the members of the profession, to induce a great number of them to join voluntarily an institution which will confer no privileges on them beyond that of choosing some of those who are to hold office. This experiment is to be thus conducted: three councils, each composed of 36 members, are to be formed in England, Ireland, and Scotland; of the 36, 12 are to be non-medical men APPOINTED by the Secretary of State, and 24 are to be ELECTED by the qualified and registered electors from among themselves, by means of secret voting papers sent to them by the registrars, and returned through the sub-registrars to the registrars, and to scrutineers elected in the same manner by the electors. Of the 12 laymen, the Secretary of State will cause three to vacate their offices annually, and will replace them by others. Of the 24 medical members of each council, the electors will in each year vote out six in nearly the same way as they voted them in, and replace them by six others; but on these proceedings the council will offer recommendations which may or may not be attended to, as the electors may think proper. From each of the three metropolitan councils of 36, four *appointed* and eight *elected* members are to be annually chosen, and these 36 doubly-distilled are to constitute a *medical senate*, who are to meet in October in each year in London, but must all vacate their seats in the following year. This senate is to have power to make bye-laws, binding on the councils, on all fellows of the future colleges, and on all beneath them. The councils also may make regulations, subject to the approval of the senate, for carrying into effect the intentions of the latter.

In the next stage of the experiment, a "College of Medicine of the United Kingdom" is to be founded, whose fellows are to consist of all the medical councillors elected in the first and subsequent years of its existence, (all of whom will be fellows for life, although they may cease to be members of the councils), and also of such other qualified and registered practitioners as the senate may pronounce to be eligible without examination, and as the councils will elect by ballot. One of the first duties of the senate will be to define who of the present race of qualified practitioners may claim to be fellows of the College without undergoing any examination. The senate is. also to determine the nature and methods of the examinations, on passing which, persons, not already in medical practice, may be admited as matriculated students of the said College; the course of instruction, the registration, &c., which they are to undergo during the period of their studentship, and the nature and modes of the examinations which, at the conclusion of their studies, they must pass, in order to obtain the fellowship of the College. The examiners both for the matriculation and for the fellowship are to be appointed by the councils, but not from among their non-members. The fellows of the College are to be licensed to practise as surgeon-apothecaries, or general practitioners of medicine, in any part whatsoever of the British dominions, and to enjoy in any of them all the advantages of all kinds to which surgeons or apothecaries have been hitherto entitled.

This will be the consummation of the main part of the new scheme; a few less important particulars follow, but we must reserve these for another occasion. It will be sufficiently evident already that this is not a plan for amalgamafing professional differences, or correcting any errors, but merely a scheme for an eighteenth faculty. The name and plan of the senate—the powers given to it in respect of the examination of candidates, and the appointment of courses of study, are on the model of those granted to the London University. Now there is surely not a legislator, except the immediate framers of the bill, who will not ask, what is to be done with the institution so lately established on what were deemed the most popular principles, supported as it was by those very persons who are now pressing forward another, which, if successful, must utterly swamp it? Is it not truly extravagant that the scheme of one new institution should be barely completed, —that it should have scarcely had one year's trial or grace, before it is proposed by those who were among the most active in promoting it to overwhelm their own project by means of another which, in its least exceptionable parts, closely resembles it, and has no one character in which it excels its prototype? We must say, that low as our estimation has been of Mr.

Warburton, and the other parties concerned, we did not expect any thing at once so unnecessary, so preposterous, and so absurd.

BRITISH ASSOCIATION.

Tuesday, September 22d.

SECTION E.—MEDICAL SCIENCE.

DR. WATSON IN THE CHAIR.

DR. CHARLES W. BELL read a paper on Bronten d'Altepe, and Baghdad, in the East.

Dr. J. R. Cormack read a communication, on air in the veins. He stated that his object in bringing the subject at all before the Section was, humbly to state what appeared to him a sufficient objection to the theory lately published by Sir C. Bell. He would not recapitulate details which he had already submitted to the profession at some length. Sir C. Bell believes that death is produced, by the air acting detrimentally on the medulla oblongata – that is, on the respiratory column of it. Dr. C. had slowly injected large quantities of air into the veins of animals, without causing death; and, indeed, unless much air *was quickly thrown in*, the animal did not die. Dr. C. farther stated, that in every case in which the experiment proved fatal, the right side of the heart was found enormously distended, and unable to contract, and he preferred considering this obvious and constantly to be observed lesion as the cause of death, rather than any thing founded on hypothesis, however ingeniously that hypothesis might be defended.

Dr. J. Reid believed that the views of Dr. Cormack were correct, and had seen many of the experiments referred to.

Dr. Pagan, of Glasgow, wished to know if Dr. C. thought that, in cases of traumatic gangrene, the air evolved might not prove fatal in the manner alluded to?

Dr. Cormack.—In some cases it may. But it would require a large quantity of air, and that suddenly evolved, to cause death in the manner described. I have discussed this question in the last chapter of my thesis. Dr. Cormack then read some medical notes regarding Tangier, in Barbary, which he had lately visited.

Dr. John Reid read a valuable paper on the Anatomy of the Medulla Oblongata. The object of this communication was to point out the relative position of the motor and sensitive columns of the spinal cord; as they pass through the medulla oblongata and pons varolii, and describe the attachment of the different motor and sensiferous nerves to these columns. Dr. Reid exhibited dissections, from which it appeared that the decussation of the pyramidal bodies is formed by the greater part, and in some cases by the whole of the fibres constituting these two eminences decussating with each other, and then passing into the posterior part of the middle column. None of these decussating fibres run into the anterior column of the opposite side, and there is no other decussation in the medulla oblongata besides this. On tracing the column which is connected with the olivary body, and which may be called the olivary column, we find that it passes downwards, approaches closely to the anterior medium fissure, immediately below the decussation of the pyramidal columns, and affords attachment to many of the roots of the motor nerves. On tracing this olivary column upwards, it is found to expand over the olivary body, affording origin to the hypoglossal and abducens along its anterior margin, and to the portio dura along its posterior margin. Part of this olivary column passes upwards to the corpora quadrigemina, affording origin to the smaller root of the fifth, and to the trochleator nerve. Dr. Reid also pointed out how the spinal accessory and part of the filaments of the par vagum may be connected with the motor column.

The president stated that the Association had voted £200 to bring over Alexis from America, and he trusted that his visit to the place of meeting next year would throw some light on a dark subject in physiology.

Dr. Allen Thompson then gave an account of the anatomy of the intestinal glands, illustrated by a great many diagrams and preparations.

Dr. Perry read a valuable paper on inflammation, and gave a tabular view of 152 post-mortem inspections made in a continued series, and all under his own eye.

Dr. Hannay, of the Andersonian University, read a memoir on hooping cough, in which he recommended cold washing to the chest. He had also found it useful in laryngismus stridulus.

The Secretary read an elaborate paper, by Dr. William Macdonald, on mnemonics, which seemed an attempt to classify mental diseases under three heads.

[On the 21st a valuable paper, from which we shall make some extracts, was read by Dr. Cowan, on the vital statistics of Glasgow. A report on the action of the heart was also presented, which has been transmitted to us, and which we shall give at length.]

ON WILDBAD IN THE KINGDOM OF WURTEMBERG.

By. Dr. Fallati.

The most comprehensive category under which to include patients who are sure to be relieved, if not cured, at Wildbad, is that of persons who are suffering from gouty dycerasia, or a rheumatic diathesis. I have seen all diseases grow better at Wildbad, which belonged to this class, and were likely to be benefited by warm baths, whatever might be the system or organ in which they made their appearance; and among them were cases in which this could hardly have been expected. This character of disease was the cause of the success of the treatment in a great number of cases of paralysis, and anchylosis, as well as of some cases of hemorrhoidal, calculous, and other urinary disorders.

It is remarkable that, in particular, local diseases, which either consist of a swelling caused by some morbid deposit, or in which such a deposit, though not visible, may be supposed, decrease rapidly and surprisingly, even when they do not depend on a gouty or rheumatic diathesis.

The baths of Wildbad appear to increase the absorption of morbid deposits more than I could have believed, had I not seen it in my own experience. As exudations of this kind occur in arthritic or rheumatic subjects from internal causes, so they occur in persons otherwise healthy from external injuries, particularly about the joints; and it is for the cure of these surgical cases that Wildbad has always been celebrated. It is the same with the different diseases of the bones depending on such causes, together with abscess, fistula, and stiffness in the neighbouring soft parts remaining after fracture. When the patients are young, and can bear the bath, such cases often form the most brilliant cures.

Those cases of paralysis and paresis which have arisen from any pressure on the corresponding part of the nervous system, whether by extravasation or exudation, are proportionably more easy of cure than others. Yet I have seen marked improvement even in those which arose from a dynamic cause, namely, fright. I particularly recollect the cure of a boy, who, in consequence of spasms in one leg resembling chorea, had lost all strength in it. He had partly recovered its use under the care of Dr. Chelius at Heidelberg, who completed his cure by prescribing Wildbad.

I have found its effects on the organs of reproduction and their functions, particularly in women, such as might have been expected from the properties of the water. In men also I have found that too frequent pollutions, arising from an excessive irritability of the genitals, gave way and became normal; while in a case of incipient paralysis, of the lower extremities particularly, emission, which had been absent for months, returned after the use of the baths.

In conclusion, I have to make a remark which speaks as much for the efficacy of Wildbad as its powers in curing disease does. I mean its injurious influence on the healthy. This influence is perceived after a few baths of short duration, or a single bath of long duration, especially in young persons who are plethoric, and inclined to congestions. In one case the symptoms threatened apoplexy; in others a simple but active vascular fever came on, which was accompanied by oppressive headache, lasted for weeks, and was resolved by perspiration. In some persons the local application of our springs, as a hip or foot-bath, has caused a sensation of warmth in the skin, lasting more than twelve hours, and was like that which follows a sinapism, without producing redness of the skin. The patients asserted that they had not remarked it after local baths of common water at the same temperature, nor even after the use of entire baths of the Wildbad springs. The reason of this may have been, at least in the latter case, that a point of comparison, furnished by the unmoistened part of the skin, was wanting.

The season at Wildbad begins on the 15th of May.—*Zeitschrift fur die gesammte Medicin*, May, 1840.

ROYAL COLLEGE OF SURGEONS.

LIST OF GENTLEMEN ADMITTED MEMBERS.

Friday, August 14, 1840.

William M'Mahon.—Anthony F. C. Colclough.—Turner O'Langlin.—Charles Basley.—John Cornwall.—James Coghlan.—John H. Rowland.—John George.—Wm. B. Egan.

METEOROLOGICAL JOURNAL.

Kept at Edmonton, *Latitude* 51° 37 32" *N.*
Longitude 0° 3 51" *W. of Greenwich.*

Sept.	Thermometer.		Barometer.	
Wednesday 23	from 40	to 55	29·18	to 29·51
Thursday . 24	44	55	29·49	29 58
Friday . . 25	47	54	29·70	29·98
Saturday . 26	37	59	29·98	29·84
Sunday . . 27	43	63	29 90	29·91
Monday . . 28	49	59	29 74	29·52
Tuesday . 29	48	57	29·52	29·61

Prevailing wind S.W.

On the 23d generally clear, rain at times; the 24th cloudy, with frequent showers of rain; the 25th morning cloudy, with small rain, otherwise clear; the 26th morning clear, afternoon and evening cloudy, with rain; the 27th generally clear, raining during the night; the 28th cloudy, rain falling nearly all the day; the 29th generally clear, rain at times.

Rain fallen, one inch and ·165 of an inch.

Charles Henry Adams.

Wilson & Ogilvy, 57, Skinner Street, London.

THE

LONDON MEDICAL GAZETTE,

BEING A

WEEKLY JOURNAL

OF

Medicine and the Collateral Sciences.

FRIDAY, OCTOBER 9, 1840.

LECTURES
ON THE
PRINCIPLES AND PRACTICE OF PHYSIC,

Delivered at King's College, London,

BY DR. WATSON.

LECTURE III.

Softening; its causes and varieties—Transformations of Tissue; laws of their occurrence — Transformation into Cartilage, Skin, Fibrous Tissue, Synovial Membrane, Adipous Tissue, Mucous Tissue, Bone. New Tissues. Changes of situation—in the Chest, of the Lung, of the Heart — in the Abdomen and Pelvis, Hernia, Intussusception, Prolapsus.

Softening.—We were occupied with that branch of pathological enquiry which relates to the various ways in which the several parts and organs of the living body are liable to be altered by disease.

We considered the changes to which the solid parts are subject in *bulk* and *form;* and that alteration of their consistence which constitutes hardening or *induration.*

The opposite condition to this is *softening,* diminished consistence, a less degree of cohesion of parts and tissues than is natural.

This also is a state of which it is important that you should comprehend the nature, and causes, and varieties; and the share that it often has in breaking down the structure of organs, and in destroying life.

There is scarcely any tissue of the living body in which softening may not take place. I shall here, however, as before, mention a few illustrations only of its occurrence, taking those instances in which the phenomenon is most evident, or is best understood.

Softening is perhaps never more strikingly obvious to our senses than when it affects the brain or spinal cord. We find portions of these organs manifestly softer than the rest. You are familiar with the usual consistence of the adult brain: you will find it sometimes reduced, in places, to the consistence of cream: a gentle stream of water suffered to fall upon the softened pulp suffices to wash it away, and a cavity is left in its place.

The cellular tissue is another part in which softening is exceedingly common, although the change is not so readily perceived. The cellular tissue is the great connecting tissue of the body; and we are made sensible of its diminished consistence when parts which it unites become separable with unusual ease. Thus you may sometimes, by exerting a very slight degree of force, strip off a serous membrane from the parts that it invests, or a mucous membrane from the surface lined by it. This ready separation is a consequence of the diminished consistence of the subserous, or the submucous, cellular tissue. The membranes themselves, in such cases, may be in a perfectly natural state.

Muscles, again, are often palpably softer than they should be: the muscular substance of the heart, for example. Here the muscular fibre may itself have undergone a change of consistence; or the muscle may simply appear to be softened, in consequence of the softening of the threads of cellular tissue by which its fibres are tied together.

The mucous membranes very frequently present the phenomenon of softening. This is more commonly seen in the stomach than elsewhere. Instead of being raised from the subjacent tissues in large flakes, the mucous membrane, when seized between the forceps, breaks off in small fragments, or it may be crushed and mashed by the pressure of the finger, or washed away in shapeless pulp by a little current of water. This condition of its lining membrane is usually limited to parts of the stomach; but occasionally it is general.

Even the bones are liable to this change of consistence. There is a disease called *mollities ossium*, in which the bones even of adults become soft and pliant, and capable of bending in any direction. There is a deficiency in their earthy constituents; atrophy of that particular tissue. Indeed, softening is often a concomitant of atrophy.

The accidental products to which I adverted when speaking of induration—especially some of the forms of carcinoma—are sometimes remarkably soft, resembling brain in consistence and appearance, or cream, or jelly. But in these cases we can scarcely consider the change as an example of softening of the textures of the body; it rather consists in the addition of parts that are themselves soft and half fluid.

Now softening may occur under very different circumstances. One very general cause of softening is inflammation. Every part, I believe, that is inflamed, undergoes, in the first instance, a diminution of its consistence. This appears to be almost the necessary consequence of the stagnation of the blood, the effusion of serosity, and the suspension of healthy nutrition. These are circumstances to which I shall recur. I cannot avoid alluding occasionally to things with which you are supposed to be as yet but little acquainted, and which will engage our particular attention as the course advances.

It would be a great mistake, however, to suppose that all softening results from previous inflammation. Doubtless it often proceeds from the direct and simple diminution of nutrition, and is then closely allied, as I said before, to atrophy. Thus softening of the brain is, sometimes, due to inflammation: we meet with it where the inflammation has been unequivocal, and has been caused by external injury; but sometimes also it is quite independent of inflammation, and is owing to disease of the cerebral arteries, whereby the brain, or a portion of it, is deprived of its full supply of arterial blood, and ceases to be properly renovated: hence a loosening of its texture—a separation of its component particles—an approach to the fluid state. I shall, of course, hereafter endeavour to point out to you more particularly the means we possess of distinguishing these two forms of cerebral softening; they constitute morbid conditions of the highest interest.

I may observe, that we have an illustration of the principle now laid down, in that general softness, flaccidity, and slight cohesion of parts, noticeable in children, or others, who are imperfectly nourished. We find this general absence of the natural firmness coincident with paleness, and a thin watery condition of the blood. Magendie kept animals upon food unsuitable to them, containing no azote, and incapable of supplying sufficient nourishment; and one curious consequence that followed was a loss of substance in the cornea, which melted down and disappeared.

There is another source of softening which requires to be mentioned—I mean the gastric juice, which has the power of dissolving not only food which is submitted to its action, but the mucous membrane of the stomach itself, and even all its tissues and coats. This cause of softening operates, however, in the dead body only; but its effects have often been mistaken for the consequences of disease; and therefore it will be necessary for me hereafter to call your attention to the circumstances under which they may be expected, and to the means we possess of discriminating them from similar changes, which are more properly called morbid.

Upon the whole, it may be said that every form and kind of softening in the living body—whether it proceed from inflammation, from disease of the arteries, from insufficient sustenance, or from altered qualities of the blood—may ultimately be resolved into suspended or defective nutrition.

Furthermore, as there is a hardness of parts resulting from repletion and distension, so there is a *softness* rather than a *softening*, from their emptiness and flaccidity: as of the breast immediately after the child has sucked—of the integuments in those who, having been fat, have wasted, either from disease or from advancing age, and so on.

Transformations of tissue.—There are a curious set of changes in the living body constituting, or arising from, what has been called, by modern pathologists, the *transformation* of tissues. In the proper place of one natural tissue we sometimes find another, which last is thus *unnatural* in regard to its situation, but natural in all other respects. The new tissue is such as we meet with elsewhere in the body, but it is not such as properly belongs to the place it occupies. Either the original tissue has been gradually converted into the new, or the original tissue has disappeared, and the new tissue has been substituted for it; that, for example, which should be cartilage we sometimes find to be bone, or *vice versâ*. The new tissue may not be, and perhaps seldom is, so perfect as that which is natural, but it very closely approximates to it in sensible qualities and physical structure.

This mode of alteration, incidental to parts of the body, has not been much attended to till of late years; yet it is peculiarly interesting, inasmuch as some of the laws, according to which the transformations take place, seem to have been satisfactorily ascertained.

In most cases the tissue that has been changed or displaced is in one of the two following predicaments:—

Either its natural function has been for a long time suspended;

Or, it has been accidentally called upon to fulfil a purpose for which it was not originally destined.

In the former case, it gradually approximates towards cellular tissue, and is at length converted into it.

In the latter, it assumes the characters of that other tissue, of which it has taken up the office.

Now all this is curiously in accordance with what we know of the laws that govern the progressive development of the human body. In the embryo, all the tissues commence by being cellular tissue, and they only assume other forms and characters, each on the condition (so to speak) of its fulfilling some special purpose. Certain of the embryonic tissues do not attain their ultimate and perfect state until they have passed through the forms of two or three other tissues in succession. This being so, we can the more easily understand how there should be a tendency in each tissue to revert to its primitive state—to the state, *i. e.* of cellular tissue—when the exercise of its peculiar function ceases. The law coincides with that by which the hypertrophy and atrophy of parts are governed, these changes being but plus and minus degrees of the same process. A muscle, put for a long time in a state of complete inaction, gradually passes from the muscular into adipous tissue, and at length into cellular.

Again, if the nature of the original function determines in the first instance the nature of the tissue, we have the less difficulty in conceiving how the nature of a new and accidental function imposed upon a tissue may determine the kind of transformation it shall suffer. Thus, to take again the instance of muscle, if a muscle comes accidentally to lie round and invest an unreduced joint after a dislocation, it assumes the characters, together with the uses, of those tissues which naturally enclose the joint—it is converted into fibrous or ligamentous tissue. We find the very same law prevailing in the vegetable kingdom: the cut *branch* of a willow tree, for example, planted in the earth, takes up the office, and gradually acquires the form and properties of a *root*.

You are not to suppose however that this transformation of tissues is indiscriminate; while all tissues are convertible into tissues different from themselves, there is a limit to the number into which they can be transformed. Nerve, muscle, and gland, are convertible into other tissues, but other tissues are not converted into them. The cellular tissue being the original web upon which all the natural tissues are constructed, is accordingly capable of numerous transformations. The other tissues admit of one, or two, or three forms only of conversion. There are some transformations much more common also than others; the change, for example, into adipous tissue, and into osseous tissue.

Not only do conversions of tissue take place during the growth of the fœtus, but the several tissues (as we learn from the study of comparative anatomy) are substituted, the one for the other, in different species of adult animals, according to the needs of these creatures; what is cartilaginous or fibrous tissue in one animal, is bone, perhaps, in another. For example, the *fibrous* sclerotic of quadrupeds becomes *bony* in fishes.

Now the following laws on this subject have been stated by Andral:—

1. Those tissues alone in the human body are susceptible of morbid or accidental transformation, which, in the progress of uterine life, or in the ascending series of adult animals, undergo regular or normal transformations. In this category are included the muscular, fibrous, cartilaginous, mucous, and cutaneous tissues.

2. The accidental transformations to which these tissues are liable are of the same kind with the normal transformations that occur in the fœtus, or in the scale of adult animals. For instance, cartilage may be converted into bone, but it is never changed into the mucous tissue.

3. Those tissues which in the embryo, or in the ascending series of animals, undergo no known transformation, undergo none of these morbid conversions. If they ever appear to do so, it is, in truth, from the conversion of parts immediately contiguous to them.

4. Every tissue that becomes atrophied tends towards a conversion into cellular tissue; retrogrades, as it were, towards its primitive organization.

In strictness of language this change ought not perhaps to be called a *transformation:* the proper substance of the tissue or organ vanishes, and the cellular tissue that sustained it being left behind, becomes more apparent.

These transformations then are not the offspring of mere chance, but obey laws originally impressed upon the living body, and impressed for wise and benevolent ends. They exemplify the working of what the older pathologists discerned, and called the *vis medicatrix naturæ.* This is a phrase that has been much sneered at; but (as I conceive) very unjustly, and sometimes ignorantly. It is simply a short formulary expressive of a great general truth, viz., that the animal frame is so constituted that, while it is necessarily liable to injury and disorder, it contains within itself the elements of repair, and of conservative adaptation. To a certain extent it is a *self-mending* machine. Surely this is an admirable provision, and strongly indicative both of wise design and of beneficent intention.

Special transformations take place then, when a tissue falls into disuse, or when a new function devolves upon it. But may all transformations be included within these limits? What is called ossification of the coats of an artery is of very frequent occurrence. Here there is neither any cessation of natural function, nor any assumption of a new function. The same may be said of ossification of the cartilages of the ribs, and of the larynx. It would seem, therefore, that there must be other agencies or conditions under which the transformation of tissues is brought about. One of the circumstances assigned as an occasional cause of such changes is what is rather vaguely called irritation. It is said, for example, that chronic inflammation and ulceration of the mucous membrane of the larynx favours and accelerates the conversion of the laryngeal cartilages into bone. A joint that becomes ankylosed under slow inflammation is a case still more in point. Another circumstance which certainly has some connexion with the same change is age. In old persons we find, almost always, more or less ossification of the cartilaginous tissue in various parts of the body.

It has been urged, by those who desire to establish the universality of the rules now laid down, that the cases adduced as exceptions to those rules are not cases of true transformation, but of morbid deposit. The earthy patches which constitute the ossification of arteries differ from bone in their chemical composition—are sometimes very small and scattered—while the intervening parts of the tissue in which they are found remain quite healthy. These circumstances, they argue, distinguish such changes from real conversions of tissue.

Bearing in mind what has already been said, let us briefly run over a few of the most common and remarkable transformations presented to us in the human body.

Cartilage.—Of the conversion of cellular or other tissues into *cartilage* we have every-day instances in the parietes of arteries—in the valves of the heart—in the walls of morbid cysts—sometimes even in the walls of a vomica.

Of transformations into cutaneous tissue, or *skin*, by far the best examples we have are furnished by the mucous membranes. When a portion of the mucous membrane of the rectum, for instance, or of the vagina, protrudes externally, is permanently exposed to the air, and subject to the friction of clothes, or of neighbouring parts—that is to say, when it is placed under the same conditions with the skin—it assumes the characters of the skin: it gradually loses its red colour and approaches the tint of the skin, ceases to secrete mucus, becomes dry, obtains even a permanent cuticle, acquires firmness and density, and is less sensible to the contact and pressure of foreign substances. It is impossible not to perceive the beneficial nature of this transformation.

Fibrous tissue and synovial membrane.—A new formation of *fibrous* tissue may result from the conversion of cellular tissue, or of cartilage, or of synovial membrane, or of muscle. I have already spoken of this change as it is seen in unreduced dislocations: it is common wherever false joints are formed. And almost under the same head we may place the conversion of cellular tissue into *synovial* membrane. Synovial membrane seems, indeed, to be little more than condensed cellular tissue. Sir B. Brodie, in his book on Diseases of the Joints, gives instances of synovial membranes being formed, where none before existed. "In a young lady who had attained the age of ten or twelve years, labouring under the inconvenience of a club-foot, a large bursa was distinctly to be felt on that part of the instep which came in contact with the ground in walking. In another young lady, who had apparently recovered of a caries of the spine, attended with a considerable angular curvature, a bursa appeared to have been formed between the projecting spinous process and the skin."

We cannot look upon any of the last mentioned changes as being morbid: they are clearly the result of natural and spontaneous methods of cure, or of accommodation.

The conversion of other tissues into *adipous tissue*, or fat, is a very curious and a very common change. Generally, I believe, this occurs in connexion with suspended function. Sometimes there is an apparent transformation of this kind in cases of hypertrophy of the adipous tissue, or general obesity, such as I have previously described. But probably these are not true transformations. If you examine a fat heart—such as is not uncommonly met with in very fat persons—you will generally find a combination of hypertrophy of the adipous tissue with atrophy of the muscular, rather than any conversion of the one into the other. The fat is deposited around, or even between the wasted muscular fibres, and the two may usually be separated from each other. It would seem, therefore, that here the converse of one of the propositions which I lately mentioned holds good—of the proposition, namely, that a suspension of the function of a tissue leads to its degeneration into adipous or cellular tissue: in the instance before us, the accumulation of adipous tissue tends to diminish, or at length to abolish, the function of the part.

Dr. Carswell, however, believes that a real conversion of the muscular tissue into the adipous takes place: and he states that the change is most conspicuous in the muscles of the lower extremities, when the limb has long remained motionless through palsy. The muscular fibres remain distinct, but are of a pale white, or straw colour, and when they are pressed between the fingers a clear oily fluid oozes out. If a portion of the muscle be steeped for a time in alcohol, this oil collects, in considerable quantity, on the surface of the spirit. What is called the fatty liver affords an instance of a morbid conversion, not at all unfrequent. The altered liver is of a light tawny colour, of diminished specific gravity, retains the impression of one's finger, is tender, and tears easily: it greases the knife that cuts it, or bibulous paper in which it is wrapped. By boiling it you may obtain a concrete oil, which has all the characters of fat.

Now what is very curious in respect to this morbid condition of the liver is, that we can produce it, at will, in some at least of the lower animals. You know that the "*foie gras,*" procured from certain birds, is an article of great luxury among epicures. It is obtained by a very cruel process. Geese, or ducks, are confined in baskets just large enough to contain them, but not large enough to allow them any motion: they are kept continually in the dark also—sometimes even, I am afraid, their eyes are put out, but this I should imagine to be a useless and superfluous piece of cruelty, it being the absence of light, and not the absence of the power of vision, which helps to bring about the desired effect. At the same time the birds are sedulously crammed with food. Under this discipline their livers acquire the requisite size, and greasiness, and the true flavour.

An ingenious theory has been constructed, in reference to the *modus operandi* of this process. The excessive supply of nutriment tends, no doubt, of itself, as it always does, to the production of fat: the constrained state of inaction interferes probably with the right and healthful formation of blood, a matter in which the liver is believed to be a good deal concerned: then we know, by experience, that the privation of light has the effect of blanching animals as well as vegetables, and thus farther interferes with the due renovation of the blood. In this way the transformation of the liver into a fatty mass has been sometimes attempted to be explained. To what extent the explanation is correct, I will not pretend to say: but it is worth remarking that the fatty liver is very frequently met with in persons who die of consumption; and in that disease there are various causes in operation tending to modify the constitution of the blood.

The history of these unfortunate fowls is not barren of instruction in respect to the more limited bad effects of full diet, want of exercise, and a short allowance of day-light, upon the "*featherless biped*" man.

The conversion of certain other tissues, and particularly of the cellular, into *mucous* tissue, is by no means a rare thing. It is held that the skin is capable of this transformation—that the skin and mucous membrane are thus naturally convertible into each other. Unquestionably they are at all times closely related, forming a continuous surface even in the sound state, and exhibiting different characters only, perhaps, in virtue of the different conditions in which they are placed, and of the different uses they serve in the animal system. When the cuticle happens to be removed by friction, or by any other means, from a portion of the cutis vera, the exposed surface, as you all know, reddens, becomes preternaturally sensible, is constantly moistened by an albuminous fluid, and approximates very manifestly to the nature of a mucous membrane.

It is the *cellular tissue*, however, that most commonly and most decidedly assumes the properties of a mucous membrane. We find that sinuses, fistulous openings, and tubes in various parts, clothe themselves, at the expense of the cellular tissue, with a surface of mucous membrane. This new tissue is not distinguishable, anatomically, from portions of original mucous tissue. It is true that we do not find it provided with mucous follicles, or with ordinary villi; but these are no essential parts of true mucous membranes. The membrane by which the surface of a fistulous channel is lined resembles very precisely, in character and qualities, the simpler forms of true mucous membrane; such, for example, as are seen in the urethra, in the biliary passages, and in excretory ducts generally. Like them it is with difficulty made to take on the adhesive inflammation: and it is for this reason that sinuses of this kind, and chronic abscesses, are so troublesome to the surgeon, and require to be laid open before they can be abolished.

I have already given you instances of the conversion of other tissues into *bone*. At first sight it would appear that nearly all the tissues are susceptible of this change. The brain and spinal marrow, the lungs, the heart, have been found more or less completely encased in bony matter: so that it is common to speak, and to exhibit specimens, of ossification of the pleura, of the pericardium, of the dura mater, and so on. But the truth seems to be that, in these cases, the ossification has taken place in the cellular tissue immediately subjacent to these membranes; bony or earthy matter being laid down in that tissue in granular deposits, or in ossific plates. And we may say, with Dr. Carswell, that the osseous transformation is exclusively confined to the cellular, fibrous, fibro-cartilaginous, and cartilaginous tissues.

We have been considering the conversion of natural tissues into other natural tissues. But tissues exactly like the natural are liable to be formed *de novo*, and afterwards to undergo many or most of the transformations that have been mentioned. You may probably have seen, for example, the pleura pulmonalis connected to the pleura costalis by very perfect cellular tissue. Now this new tissue may be converted into other tissues; into cartilage, or into bone. These are ultimate consequences of inflammation, and as such I shall have occasion to revert to them hereafter. You will in the meantime bear in mind that this is one mode in which very remarkable changes in the bodily structure may be effected.

The intimate texture of parts may be farther altered—not simply by conversion into other known forms of structure—but by an absolute disappearance or confusion of all regular structure. This is usually a consequence, either of the effusion in the natural interstices of the parts, of fluids, which afterwards pass into the solid state, or it is a consequence of the growth of solids which do not belong to the healthy body. In this sketch of general pathology I must content myself with thus briefly alluding to this source of morbid change.

I may as well observe, here, that the alterations, with which we have hitherto been occupied, of the solids of the body, fall, almost all of them, under the head of *lesions of nutrition*, as the French pathologists speak. That is to say, they commence, and have their primitive seat, in that process and place, where the blood, having reached the capillary system of vessels, performs its special purposes. It is in the capillaries that the fluids and solids accomplish their vital union. Each solid receives from the blood, and assimilates with its proper substance, material particles, identical in their nature with those of which it already consists. Each solid gives up also to the blood, and so dismisses, other particles, which before formed a portion of itself, but which have become unfit, or superfluous. Now any departure from this continual building up and pulling down—any excess, or defect, of the particles added, or of the particles subtracted—any irregularity in the manner in which they are deposited—any variation from their right consistence, or in their kind and quality—in short any deviation from the regular process, as I have briefly described it—is called a *lesion of nutrition*.

The few changes already spoken of, and *not* included among the lesions of nutrition, are:—

The distension of the hollow organs by an undue accumulation of fluids within them;

The coagulation of the fluids in their proper vessels, excluding however the capillaries;

The escape of the fluids, as such, out of and beyond their containing vessels; and

The solution of tissues, after death, by the chemical agency of the gastric juice.

None of these, properly speaking, constitute lesions of nutrition, although they sometimes lead to them.

Lastly, let us take a glance at the changes of *situation* to which the solid parts of the body are liable. They are sometimes of very serious import.

These changes of place—sometimes the consequence of disease, sometimes its cause, and not unfrequently the cause of death—respect chiefly the viscera — and most especially the viscera of the chest, abdomen, and pelvis. I omit dislocations of joints, as belonging exclusively to surgery.

In the chest, a whole lung may be displaced, and compressed against the vertebral column, by blood, or serum, or air, effused into the cavity of the pleura. An alteration of this kind, whereby one half of the respiratory apparatus is rendered incapable of its special function, cannot be otherwise than full of peril.

The very same causes operating on the left side of the thorax will dislocate the heart, thrust it over to the right of the sternum, where it may be felt, and heard, and seen, to pulsate. This again cannot happen without greatly disturbing the vital function of circulation, and putting life in jeopardy.

Yet neither of these serious displacements are necessarily fatal. Both admit, under certain circumstances, of remedial treatment: as I hope to prove to you hereafter.

In the abdomen and pelvis, the various forms of hernia may be adduced as involving very dangerous changes in the place and relative position of parts. Portions of the intestinal tube are apt to pass through accidental openings in the diaphragm—or between the edges of the linea alba surrounding the navel—or out at the abdominal ring—or through some other natural or accidental aperture. I need not tell you how fearfully life is compromised when, in consequence of such faulty position, the bowel becomes constricted—when its contents can no longer pass onwards, and inflammation, or gangrene, are present or impending. Even when there is no strangulation, the mere displacements to which the escape of the contents of the abdomen and pelvis from their natural limits gives rise, may be productive of much discomfort, deformity, and danger. Of this the historian Gibbon presented a remarkable example. He had an immense scrotal hernia; so large it was, that it hung down very nearly as low as his knees. After his death it was found that almost the whole of the omentum, and the greater part of the colon, had descended into the scrotum, and had dragged the stomach after them; so that its pyloric orifice lay close to the abdominal ring.

Akin to hernia is that partial displacement of the bowel in which a portion of it passes, not through any natural or accidental opening, but into the bowel itself: just as one portion of the finger of a glove is sometimes pulled into the remaining part, by the withdrawal of one's hand. The contain*ed* portion of intestine is liable to be nipped and strangulated by the contain*ing* portion—and all the peril of hernia results, with much less chance of relief by art. This state of things is called *intus-susception.*

Exactly of the same nature, though less alarming, is *prolapsus* of the rectum, or of the vagina. Here also a portion of the tube passes into the contiguous portion; but being near the extremity of the canal, the inverted part protrudes externally, and becomes, in most cases, a source of distress and suffering, rather than of danger. Inversion of the uterus is another example.

Thus much, then, of the changes to which the *solid* parts of the body are subject, in *bulk*, in *form*, in *consistence*, in *texture*, in *situation.*

You cannot fail to perceive the injurious effects which many of these changes in the various solids, are calculated to produce upon the movements and working of the living machine: how some of them must impede or derange its natural action; some stop that action altogether.

Now the fluid parts of the body are liable also to alterations, which, if they are not always so obvious as those of the solids, are certainly not of less moment.

You are probably aware that, for many centuries, the fluids were supposed to be the primary agents in every form of disease: that all maladies were attributed to some acrimony or peccant state of the humours; and that however else the theories of medicine might vary and fluctuate, the *humoral* pathology, till a comparatively recent period, ran through almost all of them. At length, the absurdity of the hypotheses, and still more the dangerous practice which this doctrine involved, began to be manifest, and led to its total abandonment. Rather more than a century and half ago, the foundation of the opposite doctrine appears to have been laid, by the writings of Glisson in this country, and by those of Baglivi in Italy; and presently the notion came to prevail throughout the schools, that all the morbid conditions of the body had their exclusive origin in the solids. The pendulum of opinion swung at once, as is usual, into the opposite extreme of error. It promises, in our time, to settle at the proper medium. The humoral doctrine still indeed finds favour among the ignorant, and is commonly adopted by the quack: a circumstance which illustrates the fact that the mischievous influence of unsound theories survives the duration of the theories themselves. The scientific physician of the present day can only wonder how exclusive solidism, or exclusive humoralism, should ever have found advocates.

EXPERIMENTS
ON THE
MOTIONS AND SOUNDS OF THE HEART.

BY THE LONDON COMMITTEES OF THE BRITISH ASSOCIATION FOR 1838-39, AND 1839-40.

[*For the Medical Gazette.*]

THE following report consists of two distinct portions, the former describing the experiments performed at King's College, in 1839, by the London Committee for 1838 and 1839, and the latter detailing those of the Committee for 1839-40, performed at the Marylebone Infirmary in the present year. The former series, performed in conjunction by Professor Todd, Dr. C. J. B. Williams, and the Reporter, with occasional assistance from Dr. Roget, were successfully commenced but were not completed, owing to the difficulty of procuring subjects, and other circumstances beyond the control of the Committee. No report of those experiments was, consequently, presented at the Birmingham meeting, or has yet been published; and an account is, therefore, now prefixed to the report of the proceedings of the Committee for the current year.

The experiments of 1838-9 were performed with the view to determine the physical and pathological causes of certain modifications of the motions and sounds that are presented by diseases—a chief object being to ascertain how, by mechanical and other irritations, and by displacements of the heart, murmurs could be produced; how also by inflammation. Whether, for example, the pericarditic friction sounds depend on deficient lubrication of the pericardium, or vascular turgescence, or are dependent solely on the effusion of lymph;—how far, also, the natural sounds might be impaired by interrupting the action of the valves in the living subject, or by spontaneous or artificially excited abnormal action in the muscular parts of the cavities without structural lesion. Another inquiry was this—how far do the motions and sounds of the heart in the lower animals correspond with those of the human subject: whether, for example, in birds and other animals that differ more or less from man in their cardiac anatomy, there be not corresponding differences in the cardiac sounds and motions. To those questions the experiments for 1838-9 supply answers, in most cases, which are satisfactory, in the opinion of the Committee, to as great an extext as could be calculated on from so limited a number of observations: they feel, however, that the experiments were too few to decide any point of much difficulty or importance, and that further trials, under more favourable circumstances, are very desirable.

The experiments referred to are the following:—

EXPERIMENTS FOR 1838-9.

Obs. I.—14th June. Present—Doctors Roget, Todd, Williams, and Clendinning.

Subject—An ass about three months old. Pulse about 60; regular. At 8 o'clock, A.M., a long fine needle, with a silver canula, was passed into the chest at the left margin of the sternum between the ribs to the depth of two inches. The needle immediately exhibited motions corresponding to those of the heart. The needle was withdrawn, and aqua ammoniæ, diluted with four or five parts of water, was injected through the canula. The pulsation of the heart became immediately weak and very irregular, with intermissions.

10 o'clock.—Heart's action natural; pulse 77.

12 o'clock.—Pulse 70. Occasionally irregularly accelerated for a few beats.

2 P.M.—Still no abnormal sound.

5 P.M.—Pulse 78.

15th June.—7 A.M. Pulse about 80. At half-past 7, half an ounce more of solution of ammonia was injected as before; after which pulsations weak and irregular at first, but afterwards regular. Pulse 96; strong, with clear sounds.

12 o'clock.—Pulse 72. Sounds natural and regular. First sound somewhat prolonged, with suspicion of murmur.

16th.—Sounds strong. Pulse 56. Canula again introduced at the root of the xiphoid cartilage into the pericardium. Some blood followed the needle; then some strong solution of salt was injected, whence irregular accelerated action of the heart.

4 P.M.—No murmur present. Both sounds distinct. Intermission every fourth or fifth beat. (C.)

5 P.M.—Pulse irregular. First sound double. Generally in triplets, followed by intermission, the second sound being absent in the weak strokes preceding the intermission, but distinct and loud at other times. Pulse 56, but variable. (W.)

17th.—3 P.M. Pulse 56. Still occasionally retarded. Both sounds now rough. Roughness most apparent about the base of the left side, and scarcely audible in the carotids. (W. and T.)

18th.—7 A.M. Dead. But yet warm. Much blood escaped from subclavian vein on opening chest, and coagulated afterwards. A mass of greenish-yellow lymph in the mediastinum. The cellular membrane highly vascular, and easily torn. Flakes of lymph on lower anterior left lung. External pericardium marked with many straight vessels, and intermediate red striæ, giving bright redness to the whole. Same, in a slight degree, the interior pericardium, which contained two ounces of yellow serum. At base of heart most redness. Cellular substance there somewhat infiltrated with serum. Whole interior of surface of heart healthy, except from slight thickening and opacity of mitral. A wound, plugged with lymph, found in anterior face of right ventricle.

Obs. II.—17th. *Subject*—An ass ten weeks old. Pulse 48. Regular and pretty strong. Animal weak. By pressing between the fingers and thumb the cardiac region, the thumb being on the third rib and left side, a loud blowing was excited with the first sound, which ceased on removing the pressure. After several repetitions of this experiment, a short filing sound heard (by two members of the committee), after the second sound, the first being clear. On repeating the pressure more strongly, two murmurs were heard (by the same observers), one with the first sound, and continuing after it, and one with the second sound (which was also weakened), and continuing after it.

After being fifteen minutes at liberty, the animal had a deep-toned blowing with first sound, which soon ceased, but the murmur after the second sound continued.

20th.—8 A.M. Same murmur or filing after the second sound as before. A long needle was passed two and a half inches deep vertically to the fourth rib, along the upper margin three inches from the sternum. A strong double motion was given to the needle, and a blowing, resembling a cooing, accompanied the first sound. The heart's action was increased, though the animal seemed faint.

21st.—Pulse 60. The needle again introduced three inches: as before the needle presented rhythmical movements, sternad and dorsad. That dorsad being slow and forcible, and synchronous with the first sound. That sternad being sudden, like a fall back from gravitation, and accompanying the second sound. A murmur of a blowing or whistling kind heard with the systole and diastole also, the latter variously described by different observers. Murmurs and sounds were variously altered and impaired by pressing the needle flat in different directions. On withdrawing the needle, murmurs were heard with systole and diastole, described as rasping and filing respectively. (W. and T.)

Natural sounds distinct. The needle was introduced a second and third time. After the third withdrawal of the needle a loud creaking was heard with both sounds by two observers, but no constant abnormal sound by the third. The creaking was reported (W. and T.) to continue some minutes, when the natural sounds returned, with only slight mumur with the second sound.

22d.—Animal dead (7 A.M.) and cold. Considerable effusion of bloody serum in right pleura and mediastinum. Some ecchymoses and marks of perforation on left ventricle, with corresponding marks and changes on the pericardium. Perforation three-quarters of an inch below and behind, or nearer to the apex than the semilunar valves. The needle had transfixed the left ventricle, slightly wounding the mitral, and penetrating the posterior wall. The anterior lamina of the mitral had ecchymoses, and the posterior lamina was perforated near the edge, with a small fibrinous excrescence on valve. The wound passed through the opposite posterior wall of left ventricle, around which there was ecchymosis under the pericardium. The aortics were healthy.

Obs. III.—23d. *Subject*—An ass of ten weeks old. Half-past 7 A.M. Pulse 60. Strong and distinct. A canula was introduced about an inch from the xiphoid cartilage, and for about an inch in depth, when a sound, first as of rubbing, afterwards as of blowing, accompanied the latter part of the systole. About an ounce of brine was then injected, when the pulsations became tumultuous and irregular, and the sounds obscure, with loud gurgling, (probably from injection of air).

3 P.M.—Sounds obscure, but more distinct towards the base, when a short creaking (W. and T.) or blowing (C.) accompanied the first sound, which was not audible in the arteries. Pulse irregular.

24th.—3 P.M. Pulse 90, and regular. Sounds more distinct than yesterday, and towards the base of the heart, accompanied by leather or parchment sound. Respiration laborious. Tender near the heart, but eats well, and is lively.

23d.—7 A.M. A loud parchment rubbing murmur with each of the sounds, which otherwise were distinct and natural. Pulse 80.

8 A.M.—Jugular vein opened. Copious hæmorrhage. Heart's action became rapid, with slight rubbing sound. Soon, however, became slow and strong, with superficial loud grating or rough sound, and, becoming gradually weaker, soon ceased.

One ounce of serum in left pleura. Two to three ounces in pericardium. External pericardium exhibited several striated patches of minute vessels. The cellular tissue was infiltrated with serum, and the serous membrane was easily detached. No lymph on the inner or free surface of the pericardium, but the heart was completely coated with thin, membraniform, soft lymph; thickest at the septum, and near the base. On the anterior and posterior surfaces numerous minute depressions or lacunæ were seen in the lymph. The lymph was easily removed. On the left ventricle near the apex was an oval space of an inch by an inch and a half of bright red patches, seeming partly vascular, partly ecchymotic, about the middle of which was a punctured wound, and a clot in the muscular tissue beneath, and some ecchymoses under the corresponding endocardium. The interior of the heart healthy. The serum from the pericardium after standing separated into crassamentum and liquid.

Obs. IV.—23d. *Subject*—A stout ass two months old. Pulse 60-70. Strong, with sounds very loud.

A quarter to 4 P.M. A needle was introduced at the upper edge of the fourth rib, three inches from the sternum, and one inch deep. The heart's action was accelerated, with obscure blowing with the systole. The needle being withdrawn, the heart's action was slower, with double creaking or leather sound reported by two observers as accompanying both sounds, which became stronger after a few minutes. Heart's action varying in regularity.

A quarter of an hour after. Leather sound at the site of the puncture; not at all at the apex. Natural sounds there quite distinct.

25th.—7 A.M. Both cardiac sounds loud, with sounds of friction at the basis cordis.

26th.—7 A.M. Normal sounds and friction sounds as before. A long needle three times introduced in different directions between the third and fourth ribs, and three to four inches from the sternum, without any marked effect, except sometimes, on strongly depressing the handle towards the sternum, a blowing with first sound was heard, the second sounds being normal. (Rubbing rather than blowing sound. C.)

On first introducing the needle, a scratching noise was sometimes heard, with the systole, as if from the point hitching against the heart's surface.

A fine curved tenaculum, about two inches in the curve, was then passed two to three inches from the sternum, behind the third rib, with the point towards the spine, and, when at the greatest depth, the handle was depressed towards the sternum, so as to move the hook outwards towards the ribs. A loud blowing then attended the first sound, which was still distinct. The second sound was wanting when the handle was most depressed, and obscure when the handle was somewhat raised, and restored to full force when the hook was withdrawn.

Half an hour after, the first sound was accompanied with blowing between the first and third ribs, while a friction sound accompanied the second sound. (The Reporter called it altogether friction sound, with both systole and diastole, but varying in hoarseness or roughness.) It was faintly audible in the carotids.

Half-past 3 P.M. Still slight friction and blowing (roughness only of frictions. Reporter.) increased after the animal struggled. The tenaculum was again introduced, and mianpulated as before, and again the second sound was stopped by drawing at the root of the arteries, and restored on relaxing the hold, the first sound being accompanied by a loud whizzing, and the hoarse or rubbing sound being indistinct, if not absent.

On withdrawing the hook a transitory crackling was heard. On the introduction of the hook, the heart's action became tumultuous and irregular, and, on withdrawing it, very rapid. Pulse 112. Half an hour after, the pulse still 112, and the first sound accompanied by murmur.

27th.—A quarter past 7, A.M. Sounds as before. Rough murmur, as of friction, with first sound especially. The animal then pithed, and artificial breathing established, and chest opened. Heart was acting vigorously, with the sounds distinct and normal.

FIRST EXPERIMENT.

On introducing a finger into the right auri-ventricular orifice, first sound was accompanied with a whiz, and wanted its flapping beginning. The whiz was accompanied by a thrill sensible to the finger introduced. The whiz ceased, and the systolic flap returned on removing the finger. This experiment was repeated several times with the like results.

SECOND EXPERIMENT.

The hook was introduced through the auricle to hook up the tendons of the mitral valves, when the flapping was impaired, not suppressed, and the whiz was uncertain.

THIRD EXPERIMENT.

A finger placed on auriventricular opening externally experienced the same vibratory or jerking motion as would be felt over the aortics; and to the eye the same motion was visible in the former during the first sound at its commencement, as at the arterial openings during the second sound. (C.)

FOURTH EXPERIMENT.

A blunt bistoury was introduced into the auri-ventricular opening through the auricle, and the tendons of the septal lamina of the mitral were cut partially, when the flapping of the first sound was impaired, but not destroyed.

On examining the heart were found several marks of perforation of the large arteries, anteriorly to the valves; the perforations were just at the opening of coronary, but no valve was wounded. There were ecchymoses at the external mouths of the perforations, and attached to one wound was a clot with a fibrinous peduncle. On the surface of the right ventricle, corresponding to the infundibulum, the surface was injected, and roughened by lymph, with several scratches and punctures. The lymph was small in quantity and granular in appearance. A wound in the septum was plugged with lymph, as were all the flesh wounds in the interior of the heart.

OBS. V. — 29th. *Subject*—A donkey three months old. Half-past seven A.M. Heart's action quite normal. A tenaculum passed four inches from the sternum, between the third and fourth ribs: the handle having been lowered towards the spine, there was a whizzing heard with the first sound; but the second sound was only a little weakened. The whizz or blowing continued after the experiment, with the systole, and after the flap of the valves, but soon became intermittent, and gradually disappeared.

30th.—A fine canula was passed through the sternum an inch from the xiphoid cartilage, and about twelve ounces of warm water were injected. The cardiac sounds became presently apparently distant, especially towards the sternum. On withdrawing the tube, the sounds were still distant, with little impulse, but were otherwise normal, except that occasionally the systole was accompanied by blowing during embarrassed respiration. A tumor formed under the integuments of the sternum, through which the cardiac sounds were very faintly heard, and without impulse. Heart's action much accelerated.

July 4th.—Animal pithed, and artificial breathing established. The experiments on the mitral valves then repeated. The left auricle was inverted by the finger, and the valves impeded or kept asunder by the finger in the auri-ventrical opening, when various murmurs accompanied or followed the first sound; the second sound being simply either much weakened or suppressed, and the normal sounds returned on the withdrawal of the finger. This experiment was often repeated with similar results.

A finger being placed on the exterior circumference of the mitral and aortic valves respectively at the same moment, similar jerking motions perceived in each at the closure of the valves and evolution of the two cardiac sounds. The finger when in the auri-ventricular opening was sensible of something like flapping, pushing, and stretching as it were, in and by the valves; and the supposed edge of the valve was felt tense in systole, and if divided by the point of the finger the edges of the opposite valves were thought to give a feeling of resistance, such as valvular tension must cause, supposing such tension to occur. The first sound was protracted and dull, wanting the sharply defined beginning, such as a flap would give, when the valvular action was interrupted by the finger.

The first sonnd was obscure, but audible on extraction of the heart, when the organ was irritated and contractive.

Obs. VI.—July 3d. *Subject*—A turtle, weight 150 lbs. No distinct pulsation could be heard externally. After decapitation and removal of the callipée, the heart was felt by one of the committee pulsating regularly, and two distinct sounds were heard (W.) with an interval between; the heart ceased beating too soon to allow of the other member ofthe committee (C.) making any satisfactory observation.

Obs. VII. — *Comparative observation.* The observations of the committee on the motions and sounds of the heart had been previously made almost exclusively on donkeys and dogs—animals whose cardiac structure and modes of action are generally known to agree very nearly with those of the human subject. It was therefore thought very desirable to extend their investigations more widely over the scale, as by such means, it was thought, some useful generalization might be obtained, and the views of the committee be at the same time subjected to a new and interesting test, and if sound fully confirmed, but if defective, corrected; and in any event that their future conclusions would be based on a greater variety of facts, and a more comprehensive induction. The committee, therefore, made arrangements for the purpose of visiting the Zoological Gardens, and examining as many of the animals as could easily be approached by strangers, for the purposes of auscultation, &c. Before visiting the gardens the committee met at the Hunterian Museum, for the purpose of inspecting the preparations illustrative of the physiology of the heart that exist in that national collection, and were obligingly assisted in their search by Mr. Owen, the distinguished professor to the Royal College of Surgeons. With the aid of the anatomical data collected at the Royal College of Surgeons, the committee then entered at once on their examination of the living animals. Before stating any particulars of our observations, it is proper to say that in our examination of the wilder animals we were much indebted to Mr. Youatt, the distinguished veterinary surgeon of the establishment, without whose kind assistance it would have been out of our power even to have attempted any thing in several instances. Even with Mr. Youatt's aid we found it extremely difficult in many cases to make satisfactory observations, so that in but a portion of the subjects was it found practicable for the whole of the committee to verify results to their satisfaction.

The animals sufficiently examined by all are distinguished in the following enumeration:—

1. The ostrich.
2. The ourang-otang.
3. The leopard.
4. The seal.
5. The Balearic crane.
6. The Brahmin bull.
7. The common crane.
8. The puma.
9. The Indian antelope.

Other animals examined to the satisfaction of some members of the committee were

10. The elephant.
11. The dromedary.
12. The antelope.
13. The water buffalo.
14. The giraffe.
15. The lion.
16. The nylghau.
17. The Wapiti deer.
18. The hyæna.

In No. 1. (the ostrich) the pulse at the heart was very vigorous, and about 60 in the minute. The systolic or first sound was long and obtuse, and the second or diastolic sound was short and rather obtuse.

In No. 2. (the ourang-otang) the pulse was quick, and the cardiac sounds and rhythm like those of the heart of a child very exactly.

In No. 3. (the leopard) the pulse was 60, the first sound normal, but the second rather indistinct as compared with the human standard.

In No. 4. (the seal) pulse not materially different from the human. First sound long and obtuse, second sound short and clear.

In No. 5. (the Balearic crane) pulse 130 to 140. Animal phthisical. First sound long and obtuse, second sound indistinct.

In No. 6. (the common crane) first sound short, and no second sound heard.

In No. 7. (the Brahmin bull) pulse 80. Animal phthisical. First sound long and obtuse, second sound indistinct.

In No. 8. (the puma) pulse 86. Animal sickly, probably phthisical. Grating murmur with the first sound.

In No. 9. (the Indian antelope) long obtuse first sound; short flapping second sound.

In No. 10. (the elephant) pulse 36; long and obtuse first sound, and relatively short and flapping second sound.

In No. 11. (the dromedary) pulse 48; long and obtuse first sound, short second sound.

In No. 12. (the antelope) the first sound longer and duller, the second sound shorter and sharper.

In No. 13. (the water buffalo) pulse 60. Blowing and murmur after the first sound; no second sound heard.

In No. 14. (the giraffe) pulse 50. Second sound sometimes double.

In No. 15. (the lion) first sound long and obtuse, second sound short and flapping.

In No. 16. (the nylghau) first sound normal, second sound indistinct.

In No. 17. (the Wapiti deer) pulse 60; first sound long and obtuse, second sound short and flapping.

In No. 18. (the hyæna) long obtuse first sound, short second sound.

Some other animals were attempted, but without success, viz. the dzagetai or wild ass, the rhinoceros, the cassowary, and some others. As a general observation the committee may state, that wherever the second sound of the heart could be distinguished, the character of both sounds, and the rhythm of the heart's motions, appeared to correspond with those of the human heart; due allowance being made for differences of size in the animals, differences of temperament, and the circumstances of excitement or of disease under which many of the animals laboured when they were subjected to auscultation, &c.*

AN INQUIRY INTO SOME OF THE CONSEQUENCES AND CAUSES OF FAILURE OF THE NEW OPERATION FOR THE CURE OF STRABISMUS OR SQUINTING.

By. E. W. Duffin, Esq.
Surgeon.

[*For the Medical Gazette.*]

(Continued from page 53.)

In my communication of last week it was stated that, when the adductor muscle was divided, among other reasons for the eye not turning outwards might be assigned the counteracting agency of the oblique muscles, both of which tend to retain the globe in the centre of the orbit. Indeed, in some cases in which the strabismus is very considerable, and of long standing, these muscles become implicated in its production: hence we occasionally find, as already stated, even after the thorough liberation of both eyes internally, in as far as the distortion may proceed from a morbid shortening of the adductor muscle, or other adventitious cause, that the pupils are still capable of being turned somewhat inwards, and many days, or even weeks may elapse, before they attain the fullest extent of divergence from their former situation. When the eye-ball has been so firmly detained in its abnormal position by any morbid change of structure in the cellular tissue as to wholly prevent it from being turned outwards, or to admit of it being so turned only in a very limited degree, then the tardy return of the pupil to its proper position may, in some measure, depend on the external rectus having been so long over-extended as to have lost a portion of its contractile power.

The superior oblique muscle rotates the eye in a direction downwards and inwards; and the inferior oblique being its antagonist, rolls it in the contrary direction; but neither of these muscles, either singly or conjointly, has any disposition to approximate the pupil to the inner canthus, beyond the visual centre of the orbit, unless it has been previously involved in the production of strabismus. If such, then, be a part of the functions of the oblique muscles, it must be evident that when they both act together, they will have the effect of steadying the eye in the visual centre of the orbit; or, in other words, we are indebted to the conjoint action of these muscles for the power of fixing the globe of the eye when we look steadfastly at an object placed immediately before us, and at that distance from the eye at which we see it most distinctly; this being the position of the organ in which the exertion of such a steadying power is of the most importance. If, moreover, the focus of the eye be ever changed, so as to accommodate it to the various distances at which we survey objects, these muscles must be very powerful agents in accomplishing this object, by compressing the central portion of the sphere slightly between them, and against the cushion of fat which lines the nasal surface of the orbit; thus not only increasing the distance between the cornea and that portion of the retina on which the image is depicted, but also rendering the cornea itself more convex. This presumed use of the muscles, however, I throw out as a mere conjecture, being aware that physiologists in general maintain a different opinion. The importance of steadying the eye, under particular circumstances, against any inadvertent contraction of the recti, and of accommodating its focus to the required distance, is too obvious to need comment; and I think, on reflection, we shall be inclined to admit that the same end could not be so efficiently attained by any combination of agency on the part of the recti muscles. If this view of the functions of the two obliques be correct, we may conclude that when the adductors are incapacitated by the division of their tendons, it is mainly by the co-operation of these agents, aided by the sympathetic influence that exists between the two organs, that the eye-ball is steadied, and the pupil retained in the visual centre of the orbit; although it may occasionally happen, from certain adventitious causes, that the obliques are incompetent to resist the contraction of the external recti muscles.

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* The conclusions from the preceding experiments will be subjoined with those of the experiments that follow in the report for the current year.

Such was the view that I entertained of the functions of the two oblique muscles; but it occurred to me that, instead of resting satisfied with an empty theory, or dissecting and pulling the dead muscles in the direction of their fibres, in order to observe what effect their contractions produce on the eye-ball, it would much more satisfactorily decide the question, could we in any manner witness their own uncontrolled influence on the living eye. In order, then, to have an opportunity of observing this, I procured a middle-sized dog, and, aided by my friend, Mr. Samwell, of the Marylebone Dispensary, instituted the following experiments:—

I first divided the adductor of the right eye. The effects were such as ordinarily follow the division of this muscle, and need not be further insisted on. I next cut across the second belly of the superior oblique, and instantly the globe performed a rapid and most distinct semi-revolution upwards and outwards, in the direction of a line running diagonally from the origin of the inferior oblique muscle through the centre of the lacrymal gland. This movement was forcible, quick, and decided; the pupil as speedily returning again to near its proper site. By irritating the eye with the handle of the scalpel, we had an opportunity of witnessing this movement a great number of times, so as to satisfy ourselves respecting it in every particular. Besides rolling the eye-ball in the manner just described, this action of the inferior oblique caused the globe also to *protrude* in a most remarkable degree, fully a third part of the sphere being thrust, on each successive contraction, beyond the boundary of the orbit, so that the under surface of the ball was presented to view, but as quickly disappeared again when the eye recovered its position, which it did only in a limited degree, by the action of the inferior rectus. This advance of the eye-ball, and its revolution in the diagonal line already indicated, is precisely what might be inferred from the course of the fibres of the inferior oblique muscle, and from their winding round so large a portion of the sphere. The extreme expansion of the tendon is far beyond the greatest diameter of the ball, reaching, in fact, when carefully dissected, to near the entrance to the optic nerve.

I next divided the inferior oblique, and the globe was no longer advanced on the eye being irritated; but the pupil was pulled to near the outer canthus by the action of the external and superior recti muscles; and had it not been for the restraining power exerted by the inferior rectus, would have wholly disappeared.

My next experiment was to divide the inferior oblique alone in the opposite eye. As soon as this was accomplished, which I did by passing a curved bistoury beyond it, with the point pressing against the floor of the orbit, and then pulling it sharply out, the eyeball was first instantly rotated in the direction of the fibres of the second belly of the trochlear muscle, and then drawn obliquely upwards towards the pully through which it passes. This second effect cannot, of course, ever manifest itself unless the inferior oblique be previously divided, as it arose in consequence of the eye being freed from the restraint of the latter muscle. The globe of the eye was considerably advanced, as in the former experiment, the lower surface of the eyeball being brought into view. This advance of the globe was in some measure owing to its being held bound by all the other muscles, and consequently unable to follow the full rotatory movement that would have been imparted to it had their several insertions been cut. But, of course, had I divided these, the eye-ball would have been so detached that it would have been impossible for us to have formed so correct a judgment as we were enabled to do, by making allowance for the opposition which the superior oblique met with from their conjoint actions. The true antagonist of the trochlear muscle, it is quite clear from the foregoing narration, is the inferior oblique; and it was only necessary to divide this latter muscle to allow the former to show in what direction it would pull the eyeball in the event of the operation of dividing the *inferior* oblique being undertaken, as proposed by Dr. Franz, had his attempt on the superior oblique failed (*vide* Lancet, June 24, 1840.) Had the Doctor, indeed, divided the superior oblique muscle, as he states he did, what would have been the unfortunate position of the patient's eye? Why, the pupil would have rolled upwards and outwards, and been lost to view under the lacrymal gland. Besides, it must be remembered that most animals are furnished with an additional muscle—the *suspensorius*, for the purpose of retaining the eye-ball *in situ*, and obviating the inconvenience that might otherwise be experienced from the dependent position of the head, especially during feeding. This muscle, which in ruminants is funnel-shaped, and in the carnivora quadripartite, is very powerful, and embraces the whole posterior half of the sphere. It arises circularly from the margin of the foramen opticum, encloses the optic nerve, and is inserted as just stated. Now if the eye was thrust out in the manner described, notwithstanding the additional resistance which this muscle would oppose to the protruding action of either of the obliques, on its antagonist being cut across, what would have been the consequence had the same operation been performed on the human eye, surrounding the posterior surface of which no such muscle is to be found?! I am very earnest in pointing out these facts, in order to prevent any one thoughtlessly dividing either of these two muscles; though I am informed another surgeon asserts that he has cut the *inferior* oblique. I seriously trust that he is mistaken, and that for once his usual dexterity has, in this respect, failed him. If either of these gentlemen be still of opinion that he divided the muscles in question, let him repeat the above experiments on an animal, and I think he will coincide with me, and congratulate himself that he did not succeed in his intentions.

Another effect of the division of either of these muscles we observed to be an incredible enlargement of the pupil; to such an extent, indeed, that the iris formed merely a narrow band, encircling the inner margin of the cornea. A trifling enlargement of the pupil is a common effect of dividing the adductor: hence it would seem that a certain degree of compression is constantly being exerted on the eyeball by the action of the various orbital muscles; and that the contractions of the iris, as has long been ascertained, do not depend entirely on the degree of light to which the eye is exposed, but are in a great measure attributable to the quantum of pressure to which the sphere itself is subjected.

I may here mention, that it is my intention not only to repeat the above experiments, but to institute a series of others of a similar nature on all the muscles of the eye, with a view to ascertain their positive functions singly and collectively, if this information can be acquired by such means. The results of this inquiry shall be made known to the profession hereafter.

The portion of the retina which corresponds with the axis of the eye is usually regarded as being more sensible than the rest of the membranous expansion of the optic nerve. No doubt there is general sensibility over the whole of the retina, by which we perceive the outline of a great number of objects; but if we fix the eye upon any one object, or upon any particular part of an object, the image of each separate portion successively must be traced upon that part of the retina in the axis of the eye. Now, whether the superior sensibility and aptitude to convey impressions to the brain be inherent in this portion of the retina, *i. e.* an original property of the part, or only the result of habit and constant employment, has been a matter of conjecture*. This question, however, now appear to be capable of a decided reply. The property is inherent in the particular part alluded to. When a patient presents himself who squints very much, we almost invariably find that his vision is obscure, and indeed, as has been already stated, in some cases almost amaurotic. One obvious reason of this imperfection of vision is the image not being depicted on the most sensitive portion of the retina; since immediately on the eye-ball being liberated, and its axis being made to correspond with this portion of the retina, vision is improved and becomes much clearer as soon as the eye recovers the first shock, and the temporary state of congestion induced during the performance of the operation, by the forcible efforts of the patient to close the eyelids. Were this portion of the retina not primitively endowed with superior visual sensibility, it would require some little time to educate it to the performance of its new function; but, on the contrary, it evinces in some degree its peculiar capacity from the first moment that it has the power of doing so, though it afterwards for several days improves by practice.

Strabismus Divergens (External Squint or Leer.)

This affection is of much less frequent occurrence than the ordinary squint, strabismus convergens. Out of upwards of 400 cases that I have examined, I have only met with fifteen examples; and of the operations performed upon these, not one has been, strictly speaking, successful, although they have all been improved in a trifling degree. The external cast, strabismus divergens, has been supposed to proceed from a similar cause, and to be analogous in nature to the more common squint, strabismus convergens; but in many respects it differs from it materially both as regards its pathology and, as just stated, in the degree of success that attends the operation.

The intimate pathology of the affection still remains a mystery: there are certain facts, however, deserving of notice, that throw some light upon it, and at once point out that a remarkable difference exists between the two diseases in relation to their proximate cause. These I shall state, and leave it to physiologists hereafter to explain them.

A person affected with ordinary internal strabismus, provided the eye be not tethered by adventitious adhesions, or a thickened and contracted state of the submuscular structures, can turn the eyes in any direction he chooses, by an effort of the will; while a person affected with external strabismus is generally limited in this respect. He can direct either eye outwards in looking at an object placed at the side of him, while the opposite eye *turns inwards to the full natural extent; but he is incapable of directing both eyes inwards simultaneously.* Now this is a very singular fact. Why, if he possess the power of the *adductors* separately, so as to make the axes of the two eyes, when turned to either side, correspond in the fullest extent, should he not be able to call these adductors into simultaneous contraction, and make the two pupils converge? He has power, when he makes this effort, only over the undistorted eye: the pupil of the other does not pass the centre of the orbit. It is evident that both adductors are capable of the fullest degree of contraction when they act in concert with the abductors of the opposite eyes respectively; why then should they be unable to act together? This is a curious circumstance, and only to be explained by admitting that the two adductors

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* Walker's Philosophy of the Eye, p. 193.

When a person who has had the muscle of only one side divided attempts to cause the eyes to converge, his power is limited to the intact organ. If the adductor tendons of both have been separated, then neither pupil can be drawn beyond the centre of the orbit in a *horizontal* line, unless vision be directed to an object placed at one side, and the internal rectus of the one eye act in concert with the external muscle of the other; but both can be made to incline *slightly* inwards and downwards; this, however, arises from the contraction of the inner fibres of the inferior rectus, and not from that of the adductor muscle. A person affected with true paralysis of the adductors, as I have just ascertained by examination of a patient so afflicted, and already alluded to, has no power over that of either side, whether the effort to exert the muscles be made conjointly, or in conjunction with the abductor with which each respectively co-operates in performing the simultaneous lateral movements of the eye.

The fact that *complete* paralysis can occur in one or both of the adductors, to the exclusion of the other muscles of the eye, tends to throw considerable light on the pathology of strabismus divergens. Out of the cases I have examined, three have been decidedly of this description, being complicated more or less with other symptoms of cerebral disease, and paralytic loss of muscular power either local or general. Hence I am disposed to conclude that the more common proximate cause of external strabismus is a partially paralytic condition, at all events, of the consentaneous functions of the adductor muscles, by which the natural power of the abductor becomes comparatively excessive, and sufficient to draw the eye outwards. Another circumstance that leads me to regard loss of power of some description in the adductor as the immediate cause of this affection, is, that we so frequently find the distorted eye large in comparison of its fellow—a condition that we know now is a common result of enfeebling the retaining powers.

When the external rectus is cut across, we do not find the eye instantly to start into its proper position as it does when the internal muscle is incapacitated. The pupil goes more gradually to the centre of the orbit, as if it were not drawn there by an active force, but went there because the restraining power no longer opposed the movement. After the operation, moreover, the capability of moving the eyes towards the nasal canthus by an effort of the will remains precisely the same as before: nothing has been gained in this respect: the patient has not acquired the power of directing both eyes inwards simultaneously. In fact, all the apparent advantage obtained is, that, when quiescent, the pupils of both eyes occupy the visual centre of their respective orbits, instead of only one doing so, while the other is directed outwards. The appearance of the patient in this respect may be somewhat improved, but to counterbalance this, the eye, in consequence of its retaining powers being still further weakened, is liable to protrude, and look more ungainly than before. It is, therefore, a matter for consideration to be determined by further practical experience, whether the division of the external rectus is a measure to be generally advised or not, as likely to improve either the sight or the expression of the individual. Of the precise nature of the loss of power in the internal muscle I confess I am unable to offer any satisfactory exposition; at least none that will explain how this muscle retains its contractility to the fullest extent so long as it acts in harmony with the abductor of the opposite eye, and ceases to possess this power, when called upon to act in conjunction with its fellow. The third and the sixth nerve, it would seem, can act together, but not the two third nerves. The sympathy that ought to subsist between them is in abeyance, and it appears to me that unless we can restore this, we are not very likely to gain much advantage by the operation.

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* I denominate it *sympathetic*, because it is clear if the adductors can under any circumstances turn the eyes thoroughly to the nasal canthus, they have not lost their *absolute* power of contraction.

Finally, let us suppose a case of strabismus divergens proceeding from a contracted condition of the external rectus muscle, while the adductors and obliques retained their healthy condition. What would be the likely results under such circumstances of dividing the abductor muscle? It appears to me that we should in all probability produce a most incurable strabismus convergens, because we should have three muscles left at liberty to contract to any extent of which they might be capable, but more especially the adductor; whereas the case is very different when the internal rectus is divided, the abductor being still opposed by the two obliques.

14, Langham Place, Regent Street,
Oct. 1, 1840.

THE VARIOUS OPERATIONS FOR STRABISMUS.

To the Editor of the Medical Gazette.

SIR,

THAT many different opinions should be entertained as to the best method of performing the operation for strabismus is what might very naturally be expected; and it is also very natural that each operator should have a peculiar affection for any little invention of his own. I should have remained, as hitherto, a silent spectator of the various claims to superiority in the performance of this simple, beautiful, and truly scientific operation, had the different competitors for public favour been content with the recommendation of their own plans without decrying those of others, often most unreasonably as well as unjustly. Having no invention of my own to bring forward, having seen the operation for strabismus performed in nearly a hundred cases, and having operated myself several times, I have anxiously endeavoured to form an impartial judgment of the merits of the different methods of its performance. As the operation for strabismus is at present rather a novel one, I trust that the results of my experience upon the subject may not prove entirely useless or uninteresting to those gentlemen who may not have had quite so wide a field for observation as myself.

There are two things especially to be desired in an operation: viz. that it should be performed, if possible, with celerity and safety. The next thing desirable is, that no unnecessary pain should be inflicted upon the patient. It is upon the latter point, more especially, that appeals to the public are most likely to prove successful; and it has consequently been the one which has been the most eagerly seized upon by many who have written on the operation for strabismus. The hook for fixing the eye has been invested with "terrors not its own," and its use afterwards described as the infliction of unnecessary pain. The speculum for raising the upper eyelid has been nearly as much abused as the unfortunate hook. That the improper use of either instrument may cause considerable pain I readily admit; but deny that such is the case if employed with proper care and gentleness. We are told by some gentlemen that the hook and speculum are unnecessary; that the finger of an assistant will answer the purpose of the one, whilst the other can be dispensed with entirely. It is true that the upper eyelid can be raised very effectually by the finger of a practised assistant; but by persons in general the lid will be better raised by the speculum. As to the comparative pain of the two methods, I have seen both properly managed; and, on questioning patients as to which gave them less uneasiness, the finger or the speculum, the answer has been generally, the latter. The pain caused by the hook has been greatly exaggerated. It would seem that some men delight in raising giants of straw, solely for the satisfaction of easily knocking them down afterwards. It has been asserted that the eye is forcibly compressed by the hook, and that considerable injury is inflicted by the instrument. If the hook be properly made, very slight pressure is sufficient to fix the eye, which has then only to be drawn gently outwards in the inward squint, without further compression. The hook may certainly, in many cases, be dispensed with; but it is not every one who can so command the muscles of his eye as to be able to keep that organ sufficiently steady without its being properly fixed; and the omission of the use of the hook will, in many instances, not only prolong the operation, but often render the division of the various bands of adhesion incomplete. I believe the employment of the hook will, in a great majority of cases, by facilitating the operation, be the means of saving the patient much unnecessary pain. I have seen the operation for strabismus performed in a great number of instances by Mr. Charles Guthrie, at the Westminster Ophthalmic Hospital, and it appears to me that his method of performing it combines simplicity with neatness and efficiency. In the generality of cases the operation has been completed within a minute; but there have been instances where it was necessary to divide several bands of adhesion, which, of course, rendered the proceeding more protracted. The instruments generally used by him are, a small sharp-pointed bistoury, with a slight curve; a small director slightly grooved upon its concave surface, and sufficiently curved to be passed under the muscle with facility; the hook to keep the eye steady; and small silver speculum. The incision into the conjunctiva is made by inserting the point of the bistoury opposite the lower side of the tendon of the rectus, and cutting upwards for a quarter or three-eighths of an inch. The curved director is then passed under the muscle, which is divided upwards by the sharp-pointed curved bistoury along its grooved surface. If the patient, after the division of the tendon, be capable of directing his eye inwards (or, if an external squint, outwards) in any degree, the remaining bands of attachment are readily caught up by the director, and divided by the bistoury.

This operation should never be considered complete whilst the eye can be turned at all inwards; or, when the squint is in the opposite direction, outwards; for, when all bands of adhesion are fairly divided, the eye usually appears to be fixed motionless in its orbit, with the cornea in its natural position very nearly in the centre. I have never seen a case of strabismus in which it was necessary to divide any other muscles than the external or internal rectus, and cannot help thinking that other muscles have been often cut unnecessarily. It has been said by some persons that the operation leaves the eye in a worse state than the squint for which it was performed; and that it becomes disagreeably staring and prominent. In my own cases no such effect has been produced. I have attentively watched a great many of those operated upon at the Ophthalmic Hospital, and although there has been, in some few instances, a slight degree of increased prominence in the eye, yet it has never amounted to deformity. In the majority of cases, however, the operation has been highly gratifying, and, in many instances, no difference was observed between the eye operated upon and the other. With regard to the number of little hooks that have been invented for fishing up the rectus muscle, I cannot see any advantage they possess over the instrument used by Mr. C. Guthrie, which, by forming at the same time a director for the bistoury, most certainly facilitates the operation. It has been observed in some few cases that, although immediately after the division of the internal rectus the patient has been incapable of directing the eye inwards, yet, in a few days, it has again turned towards the inner canthus. Notwithstanding this untoward occurrence, it has been sometimes found that, in the course of three or four weeks, the eye has again become quite straight. In such a case it is to be presumed that the return of the squint has been caused by effused lymph uniting the posterior part of the divided muscle to the sclerotic coat; and that the subsequent return of the eye to the straight position has either arisen from elongation of the effused lymph, or from the slight adhesions having been broken down by the increased action of the external rectus muscle. When such an occurrence happens, the patient should be made to use the muscles of the eye which has been operated upon by covering the sound one for some little time.

A sufficient period of time has now elapsed since the operation for strabismus was first introduced into this country to enable us to form a tolerably fair judgment of its success. When properly and efficiently performed, that is, when no bands of adhesion are left undivided, with but few exceptions, the operation will prove highly satisfactory. In Mr. C. Guthrie's pamphlet on strabismus, the results of two hundred cases are stated; and having had an opportunity of seeing most of his patients some time after the operation, I can bear testimony to the extreme accuracy and fairness with which his report has been drawn up.—I am, sir,

Your obedient servant,
ROBERT WADE.

68, Dean Street, Soho,
September 28, 1840.

EXTRACTION OF AN OVARIAN CYST.

By BENJAMIN PHILLIPS, F.R.S.

[*For the Medical Gazette.*]

UNQUESTIONABLY it is more agreeable to detail the results of the successful than the unsuccessful practice of our profession; and yet it is equally incumbent upon the practitioner to detail the one and the other: if he suppress successful cases, an unfavourable impression may attach to beneficial practice; if he suppress unsuccessful cases, he is guilty of a serious offence; he may be the culpable instrument through whose agency human life may be sacrificed. There are many surgical operations so firmly established in practice that it may seem unnecessary to publish results; but though this may be true, there is no operation of which we know the precise risk, and therefore all that is exact yet remains to be accomplished. I feel strongly the importance of recording, on a large scale, the risk attendant upon the performance of all operations. It is an element which should be carefully considered before an operation is decided on. For instance, a large aneurismal tumor may exist in the innominata; nature may cure that tumor; it has done so in certain cases: now supposing it could be shown that nature did so once in a hundred cases, and further, that the ordinary operation failed ninety-nine times out of a hundred cases, the operation promises no fairer than nature, and if it fail death is speedy; whilst, if treated carefully, without operation, life may have been extended for months, or even years: it is clear, then, that under those circumstances the operation would not be justifiable. Up to the present moment we possess neither of those elements so necessary for a proper decision in the case; we do not know whether nature or art be most powerful for good in a large number of cases. If such information be important as regards established operations, how much more so is it as applied to operations about which opinion is divided? Very few of the members of our profession are at all aware of the extent of mortality consequent upon surgical operations; and until a system of reporting is fairly and honestly carried out, we cannot hope to be better informed. An unhappy disposition seems to me to be gaining ground, of publishing only successful cases; as if any moral imputation could attach to failure in cases where failures must often happen. This system is in every respect an immoral one; and that I am not stating the case unfairly must be evident to every one who takes the trouble to turn over the pages of our weekly metropolitan medical journals. I care not what diseases you investigate, if you take the published cases as a fair statement of the results of treatment, you can only come to one conclusion—that the power of medicine and surgery over disease is stupendous; that its failure is uncommon. Take typhoid fever as an example, and you find the mortality scarcely exceeds a fourth, whilst if you take the honest records of an hospital, I care not what mode of treatment has been adopted, and you will find the mortality a full third. Take hernia, take amputation, take the ligature of arteries, and the same reasoning applies. One source of this state of things arises out of a desire men feel to find a cause of death over which they could not have had control; and that is rarely difficult: the consequence of this is, that when they estimate the results of treatment, they exclude all cases where they can find a reason for death independent of the operation or the treatment. This is a dangerous system, pregnant with error, incapable of being turned to good account. It is better that we should know in a given disease (a certain line of treatment being adopted) the wholesale results: so many died, so many recovered. Short of that there is not, to my mind, any security as to the correctness of our impressions, that one mode of treating disease is better than another. I hope, nay, I am satisfied, that this opinion will ultimately prevail. Several hospital reports have been published within the last year; their example must be followed, because not only the public, but the profession, must be the gainers by the system.

These remarks on the present occasion more particularly refer to a mode of treating ovarian cysts which has been introduced into practice within the last four years. It is not worth while to ransack the archives of antiquity, for the purpose of showing that attempts have, in early times, been made to extract ovarian cysts; for all practical purposes it is sufficient to assume that to Mr. Jeaffreson belongs any merit which may attach to the plan of treating these cysts, by extraction through a small opening in the abdominal parietes. I assume that all cases in which this operation has been performed are before the public. I know only of eleven cases (for I exclude Mr. King's case, in which no cyst was found, though the case did well) in which the operation was performed; of these, seven *perfectly* recovered, one *imperfectly;* she was tapped seventeen times afterwards; and three did not recover: among these I include the following case. Mr. West's unsuccessful case was a patient whose cyst contained eleven gallons of fluid: "her constitution was much shattered," and she had been repeatedly tapped before. A second case occurred in Guy's Hospital; but here the operation was difficult, and the cyst was not extracted: my own is, as far as I know, the third unsuccessful case; and the causes of its failure will be detailed presently. Mr. Jeaffreson has therefore reason to felicitate himself for having introduced to the notice of the profession a mode of treating ovarian cysts, from which, under favourable circumstances, great good may be reasonably anticipated.

There are certain circumstances which are held to be favourable for the success of the operation. A single cyst containing only fluid matter; the absence of adhesion to the abdominal parietes; and a good condition of the general health. Of these the latter is the only one that can be satisfactorily made out; with respect to the first and second we cannot go beyond probable conjecture. However, adhesions, and even the existence of a solid portion in the tumor, are not held to preclude us from the operation; because both have been successfully surmounted.

A. D., aged 21, had tolerably good general health up to last Christmas, when she experienced a heavy, but not intense, pain in the right iliac region; gradually this subsided, and she then perceived a slight enlargement or tumefaction about the umbilical region: this continued steadily to increase, and was accompanied by some pain in the same region. At this time she consulted Dr. Heming, who directed her to lose some blood by cupping; and the pain was lessened. The pain was not at all severe, and was occasioned, in all probability, by distension. In May, the tumefaction was so far increased as to have become apparent externally, and subjected her to remarks which distressed her a great deal. Under those circumstances she stated that in June she applied to Mr. Liston, who referred her to Dr. Locock: he examined her with great care, and told her that she had an ovarian cyst, which then contained probably ten pints of fluid; that it would continue to increase, that medicine would give her no relief, that tapping would afford only a temporary alleviation of suffering, and that, therefore, he would not advise her to submit to it; but that within the last four years an operation had been invented by which the cyst could be extracted; that if it succeeded her disease would be radically cured, and he strongly advised her to undergo that operation. With this opinion she returned to Mr. Liston, who said he would admit her into the North London Hospital. To the hospital she went, but Dr. Thomson, the physician of the week, believing that the tumor was more or less solid, advised that the operation should not be done, and she was not therefore admitted. Thus foiled, but determined if possible to have the cyst extracted, she applied to Dr. Hamilton Roe, who at once detected the nature of the disease, and informed her that she had not the slightest chance of having the tumor removed by medicine or tapping; that her only hope of getting rid of it was by having it extracted through the muscles of the abdomen; but warned her that though the operation was successful in a majority of those who had submitted to it, nevertheless there was considerable danger, and therefore she must herself make choice whether she would bear to carry about the tumor, with which she might live a long time, or risk her life to get rid of it. He then very kindly referred her to me. After twice examining her, satisfying myself that there had been no peritonitis, that there were probably no adhesions, that her distension was fast increasing, that she was daily becoming less and less capable of getting about, that her health was beginning to suffer, and that she had then probably fifteen or sixteen pints of fluid in the cyst, I reiterated Dr. Locock's advice. I told her what had been the results of the operation, and what were its dangers; I advised her quietly to consider these things, and if, after having done so, she still determined to have the operation performed, I would undertake it, provided, upon consultation with my colleagues, they were of opinion that it was an ovarian cyst, containing only fluid matter. She took very little time to deliberate, but from various circumstances she was not seen by my colleagues for a month: the result of their examination was, that the disease was an ovarian cyst containing fluid, and that it was probably not adherent.

On Monday, September 7, her mother called on me, and it was arranged that she should come into the Infirmary on the succeeding evening, and that the operation should be performed on Wednesday morning. The mother asked me whether she should take any medicine before her admission. I inquired into the state of the bowels, and was informed that they were confined, and that she was constantly obliged to take some rhubarb to induce a sufficient action. I then told her that she had better take on the following morning a small dose of the medicine, so as to gently open the bowels. On Tuesday evening she was admitted into the Infirmary. At ten o'clock I saw her; asked her whether the bowels had acted properly, and was assured that they had. She was in good spirits, and expressed a hope that I would not delay the operation beyond the following morning.

On Wednesday, at 10 o'clock, in the presence of Drs. Roe, Clendinning, Harrison, Heming, and Boyd, Messrs. Samwell, Joseph, Prichard, Brown, and others, I performed the operation. The patient lay on a bed. The first incision commenced about an inch below the umbilicus, and extended rather more than an inch and a half. It was necessary to give the cutaneous incision rather more extent than I at first proposed, because (strange to say, considering how great was the distension) there was three-quarters of an inch of fat upon the abdominal parietes. I dissected, carefully, until I came upon the sac: as soon as I had sufficiently exposed it, I seized it with the vulsella to prevent any difficulty of getting hold of it when emptied. It was then punctured with a trocar, and 330 ounces of a transparent, glairy, albuminous fluid was evacuated: the sac, which was extremely thick, was then drawn out through the opening, which it was necessary to enlarge slightly. The sac had no other attachment than its pedicle; the pedicle was, in fact, the Fallopian tube, to which it was firmly attached over more than an inch and a quarter. Around this tube a ligature was tightly drawn by Mr. Samwell; the ends were cut close, and the sac was detached without the slightest difficulty. Not an ounce of blood was lost during the whole operation; and when it is stated that her heart's action had not been accelerated to the extent of two pulsations during the operation, and that, at the conclusion, the pulse did not exceed 68, it must be evident that the suffering was not great. The external wound was accurately brought together with hare-lip needles, and there was no oozing of blood. From the moment of the operation there was severe pain in the right iliac fossa, which I referred to the strangulation of the tube by the ligature; there was also frequent sickness. To relieve this pain, in an hour after the operation an opiate enema was administered; it produced little relief, and in two hours afterwards a draught, containing thirty minims of the bimeconnate of morphia was exhibited: still the pain distressed her, and in two hours more a pill containing half a grain of the chloride of morphia was administered, and late in the evening another enema, containing forty-five drops of the liquor opii sedat., was thrown up, and a draught, containing tinct. digital. ♏x.; acidi hydrocyanic. ♏ij.; morphiæ chlor. gr. 1-3d, ordered to be taken every four hours. During the evening, when vomiting supervened, there was an oozing of blood from the wound, but to no great extent. It was not easy to account for it, because no vessel was wounded during the operation. The only point upon which suspicion lay was the ligature around the Fallopian tube; but as there was no evidence of blood being poured out into the abdominal cavity, the suspicion seemed vague.

Evening, 12 o'clock.—The pain was still considerable, but mainly referred to the right iliac region; the general tenderness was slight; the sickness occasional. The pulse had materially increased in frequency, and the skin was hotter: believing that there was reason to apprehend local peritonitis, I ordered

℞ Hydr. Submur. gr. iij.; Opii, gr. ss. 2ndis horis. Enema Tereb. statim. Hirudines xx. abdom.

Thursday morning, 8 o'clock.—Pain in iliac region relieved by leeches, but complains of pain in the umbilical region; tenderness on pressure considerable; no tympanitis; nausea still continues; countenance *very* good, pulse 94; heat of skin moderate; bowels not opened.

Ordered to intermit Calomel and Opium; to rub in Ung. Hydrarg. ʒj. 3tiis horis; to apply 12 leeches to the umbilical region.

12 o'clock.—Bowels still confined.

Ordered Ex. Col. Comp. gr. ij.; Capsici, gr. ss. omni hora; 12 leeches to epigastrium, where she complained of tenderness.

7 o'clock.—Pain much abated; pulse 100; bowels still confined.

Ordered Mag. Sulph. ʒj.; Acid. Hydrocyanic. ♏ij.; Tinct. Digital. ♏xij.; Inf. Rhœad. Comp. ℥ss.; omni hora.

Friday, 8 A.M.—Bowels acted *well*, three times, during the night; nausea lessened; pain much relieved; countenance good; pulse 96; abdomen soft.

2 o'clock.—Can bear pressure; has just had a liquid stool.

8 o'clock, P.M.—Has had four liquid stools; countenance good; complains of pain—probably, from its moving about, tormina; however, I thought it safer to order—

12 leeches; Opiate Suppository; Pulv. Aromat.; P. Kino Comp. aa. gr. v.

10 P.M.—Morphiæ Chlor. gr. i.

Saturday morning, 8 o'clock.—Slept from 10 till 3, when she awoke; more liquid stools; was seen by the resident physician, Dr. Boyd, who ordered an opiate enema, and Pulv. Arom. and Pulv. Kino, aa. gr.v.: has scarcely any tenderness; abdomen soft. Cholera-like symptoms persist at 12 A.M., when she was ordered to take Cupri Sulphat. gr. 1-3d, omni hora: this was rejected, and Plumbi Superacet. gr. iij. Ex Paparv. gr. ij. substituted. These were not rejected, but they did not lessen the stools, which were like rice water, and incessant. Through the whole of Saturday these symptoms continued, without peritoneal tenderness, or any approach to a peritoneal countenance, but with incessant vomiting, the extremities becoming blue, but with the mind intact; they persisted, without remission, until five o'clock on Sunday afternoon, when she died.

She was examined on Monday (at 2 o'clock) in presence of Drs. Clendinning, Harrison, Lee, and others: the abdomen was soft and flat; the incised point was nearly healed. When the cavity was exposed, a diffused injection was apparent, but, with the exception of some small patches of lymph, none of the ordinary products of peritonitis existed. In the cavity from six to eight ounces of blood was found; it contained a few coagula, but it was dark in colour. Upon examining the Fallopian tube the ligature was found in its place; but it was evident that, from its hypertrophied condition, it resisted the necessary constriction, (although Mr. Samwell had used much force) and the extravasation was a consequence of oozing from the extremity of the tube. That oozing, however, had long ceased; for nature had blocked up the vessels. The opposite ovary was not healthy. Upon laying open the large intestines we found them covered with an exudation such as is found in croup—a false membrane: when this was torn off with a forceps, the membrane presented what the French pathologists term an *erosion*, which was, no doubt, the commencement of extensive ulceration, and which was clearly of some standing.

When the dejections became frequent, the mother of the patient informed me that her bowels were "very delicate;" that she had forgotten to say any thing about the rhubarb on the morning of Tuesday; that she recollected it in the afternoon, when her daughter came in; that the daughter said, "It is lucky, mother, that you did forget it, for I have been twenty times to-day; but do not say any thing to Mr. Phillips about it, or he will put off the operation."

Although extraction did not succeed in the case of this young woman, it did not, in my opinion, fail from any vice inherent in the operation. I say, without hesitation, that her death was caused by the state of her bowels, and with that I apprehend the operation had nothing to do. I say, with equal confidence, that had this complication not supervened, there is great reason for supposing that the operation would have succeeded. Up to the moment when that cholera-form affection was developed, 56 hours after the operation, the prospect was most cheering; the abdominal tenderness was greatly abated, the pulse had been reduced to 92, and those who had at first no confidence in the operation, now became sanguine of a successful result. The dangers of the operation, which I had anticipated, were difficulty of getting at or extracting the cyst, the shock of the operation, and peritonitis. In the present case no difficulty was experienced as regards the first two points; and I am fully justified in saying, that the degree of peritonitis was by no means incompatible with recovery. Acute pain followed immediately upon the operation, and continued for many hours: for some time it was a good deal confined to the right iliac fossa, the seat of the ligature, and I was disposed to refer it to the constriction of the ligature; but I am now inclined to think that it was not produced by that, but was excited by the blood which exuded from the cut surface of the tube: it was at first developed at that point, but as the blood was spread over a larger surface of the peritoneum, the pain was also spread farther. I say I am disposed to adopt this conclusion, though I may have no sufficiently satisfactory proof that blood in contact with the peritoneum will at once excite severe pain. I have only two cases to adduce in proof of such an effect:—one was an aneurismal tumor, which had burst into the cavity of the peritoneum; the pain was immediately dreadfully intense: in the other case, the spleen was ruptured by a fall: immediate agonizing pain was developed all over the abdomen: about six ounces of blood were found in the peritoneal cavity. In opposition to this opinion, I know that Mr. Gulliver has injected blood into the abdominal cavity, without exciting inflammation, or apparently pain. In our case the ligature had excited no peritonitis; the blood had, but it was not intense, though diffused; the early and energetic treatment employed had prevented its further development, had induced it to enter upon a retrograde course: this, I submit, is proved by the great abatement of pain, the lesser frequency of the pulse, the relief of the sickness, the absence of tympanitis, the ability to lie perfectly straight without inconvenience, the character of the face, and the occurrence of three good stools. The blood had ceased to ooze; the inflammation produced by that which was extravasated was fast abating, and the ligature had not proved itself apt to excite peritoneal inflammation at all. I say, then, that so far as the operation is concerned, it afforded, in the present case, a fair and probable cause to believe that it would have succeeded, if we had not had to contend with the supervening affection.

My confidence in the operation, when there is reason to believe that there are no adhesions, and that the patient's health is satisfactory, is greater than when I undertook it in the present case; and when we take into account the results of medicine, of tapping, or of the disease left to itself, I think no one can doubt that an operation which, under adverse circumstances, has succeeded nine times out of twelve cases, ought to be resorted to, before complications or counter-indications are developed. We do not hesitate to have recourse to the ligature of large arteries, and to regard it as a justifiable operation, though the results are much less favourable; we do not object to perform amputation of the thigh, although nearly two out of five die; and why should we regard an operation exhibiting such a result as is presented by the operation of extraction of an ovarian cyst with disfavour? Simply because it looks formidable, and because it is new. But it may be said the difficulties are frequent, adhesions almost always occur, and they must materially lessen the chances of success. I know Dr. Seymour has stated that these adhesions exist in 99 cases out of every 100. I am by no means prepared to contradict the correctness of this assertion, because my opportunities of examining these sacs after death amount only to nine cases: in several of these the patient had been tapped, but in not one of them did the cyst adhere, except by its peduncle, whose extent was variable, though never great. In twelve instances the results of the operation of extraction are recorded; of these there were adhesions in four cases, and in two of them the patient had been tapped; but in neither of those cases did the adhesions constitute a serious obstacle to the removal of the cyst. It may be said that another difficulty may be experienced, by the presence of more than one cyst, and the occurrence of a considerable quantity of solid matter. That more than one cyst may exist in the same tumor at the same time cannot be denied; but although it may be, it rarely is presented; and there can be no difficulty in introducing the trocar into the second cyst, if it be found to constitute an obstacle to extraction. As to the coexistence of a large cyst and a solid tumor, I do not deny that it may happen, but I do maintain it to be a rare exception; and if that rare and exceptional case is presented, the practitioner should be prepared to meet it. In my apprehension the occurrence of peritonitis is the danger; but that is a danger which we do not regard in the same light in other cases. The opening into the abdomen is not much larger than that which is made in cases of hernia. But it may be said peritonitis very commonly follows that operation. In my opinion it more frequently precedes it; the symptoms commonly presented warrant me in coming to that conclusion. But recollect, in the one case we have at the time of operation (for we can choose our time) a comparatively healthy abdominal cavity; in the other we have a greatly injured intestine, and a probably inflamed peritoneum. I believe, in the present day, the operation for hernia has such unfavourable results, because we wait too long—until, in fact, peritonitis is developed; that we too energetically manipulate the part: this is first done before a patient is admitted into an hospital, then by a house-surgeon, then perhaps by an assistant-surgeon, and lastly by the surgeon himself. Add to this, that irritating injections and drastic purgatives are often given, and how can we conceive it to be possible that the patient should escape scatheless? The result of this practice might be anticipated. In the hospitals of Paris it is estimated that half of the patients who are operated on for hernia die; in London I believe the results to be little more favourable. I believe, when done at a proper time, the operation for hernia is a very successful one, though I do not go so far as Pott, who maintained that, when undertaken at a proper time, there will not be more than one death in fifty. If after the operation for hernia, the gut not being too much diseased, and the peritoneum not being inflamed, the mortality consequent upon the developement of peritonitis be three times as great as Pott believed it to be, still it would constitute a very small mortality; and if we say that, in the operation we are considering, the chances of peritonitis were four times greater than in hernia, still it is clear that we ought not to hesitate, when the patient's condition is favourable, to perform the operation of extraction of the cyst.

Wimpole Street, Oct. 6, 1840.

MEDICAL GAZETTE.

Friday, October 9, 1840.

"Licet omnibus, licet etiam mihi, dignitatem *Artis Medicæ* tueri; potestas modo veniendi in publicum sit, dicendi periculum non recuso."
CICERO.

THE MEDICAL SCHOOLS.

WE believe that the whole number of medical pupils who have this session entered at the Metropolitan Schools is considerably less than it has been for some years past. A gradual but slow decrease has been observed for several sessions, as the result of which we have noticed the closing of some of the smaller schools; but this year the diminution of the number of students is more considerable, though the loss, having fallen in nearly equal proportions on all the schools, is not materially felt by any of them.

Many circumstances may be assigned

as the causes of this change. The alterations made in the scheme of education required by the Apothecaries' Company a few years since, and the fears that other changes would soon follow, of which the tendency would be to render the attainment of the license still more tedious and difficult, might induce some students to repair very early, not to say prematurely, to London, that they might be secured from the effects of alterations made subsequently to the date of their entrance to lectures. Thus, while there would be an excess in the pupils of those years, there might be expected a comparative deficiency of those of the present. And in the same manner the unsettled state of the regulations of the College of Surgeons may be supposed to have exerted a similar influence; or, still more, their late arrangement, by which candidates for the diploma are not required to have received any part of their medical education in London, may be believed to have already operated to the disadvantage of the London Schools. It may be that each of these circumstances has had some influence; but we are assured that the falling off, not only in this, but in several past years, is greater than can be accounted for by any or all of them. The influence of the two first of them would, indeed, necessarily have decreased in the last two years, and that of the last of them would scarcely yet be felt; for there is at present so strong an opinion (whether well-founded or not) of the advantage of attending the London Schools and Hospitals, that none will yet be inclined to forego them, except those who, if the above-mentioned regulation had not been made by the College of Surgeons, would have educated themselves for the Apothecaries' Hall in the country, and would not have taken the diploma of the College at all.

We feel assured that the cause of the decrease of London students has a much deeper origin, and that it is only a sign, though the best that can be afforded, that the whole number of persons entering the profession of medicine is annually becoming less. That this is the case is strongly confirmed by the reports which are constantly received from the provinces of the difficulties which practitioners find in obtaining apprentices even at reduced premiums, and by the consequent demand for assistants. Between ten and twenty years ago every surgeon in the country who enjoyed a moderately extensive practice had his one or more apprentices, by whom all the dispensing and minor visiting was performed, and who, for the advantages of these, and a certain amount of medical instruction, paid a handsome premium. Now, surgeons can often get no apprentices at all on such terms, and must be content either to do all their work themselves, or to take an apprentice whose money-premium is merely nominal, and who actually pays by his services alone, or they must (as the large majority do,) take an assistant, for whose services they themselves have to pay.

The number of well-educated members of our profession—gentlemen by birth and by attainments—who are now compelled thus to earn their maintenance as assistants, is, indeed, truly lamentable. We can almost remember the time when no such class existed. The Apothecaries' Assistant of the Bill of 1815 was a person of altogether a different caste, educated in an inferior manner, and not licensed to practise for himself, holding an intermediate rank between the regularly licensed apothecary and the druggist. In the present day, unhappily, the place of the Apothecaries' assistant is too often occupied by the apothecary himself; by one well calculated to undertake all the charge of the practice, of which he is compelled to do only the inferior work.

From all this, as well as from many other circumstances to which we have often called attention, it is evident that the number of medical practitioners is, at the present time, too great for each of them to be adequately remunerated. The number of persons entering the profession will always be determined by the probability which their parents or guardians can see that money will be well invested in medical education. Now the tendency of late years has been (very properly) to raise the standard of professional knowledge; but this could not be effected without at the same time, and in nearly the same proportion, adding to the expense of attaining it; and unfortunately, there has appeared no promise of increased remuneration to compensate for this increased outlay. When parents see those who are fit to be practitioners leading the weary life of assistants, always ill paid, and often utterly unable to find an opportunity for such an exertion of their energies as might lead to an improvement in their condition, no wonder if they hesitate to expose their sons to the risk of such a fate, and instead of committing them to the chances of medicine, send them to the less exhaustible sources of profit in other professions, or for the certain remuneration of industry and talent which is promised in almost every branch of commerce.

The decrease of students in London, then, is only another proof of the fact that the profession is already, and has been for some years, *overstocked*, by showing that medical education is no longer considered by the respectable part of the public a good investment for their money. It is the misfortune of both the practitioners and teachers of this generation that they have fallen on the days when the evil has so accumulated as to have begun to work its own cure. That it will do so cannot be doubted; the supply of medical practitioners, as of everything that is required for the public service, must be guided, or rather must guide itself, according to the demand made for them; and of this demand the measure may always be ascertained by the degree in which each is remunerated.

The present excess has resulted from numerous causes in combination. The cessation of the war not only immediately added largely to the number of practitioners resident in the kingdom, but by cutting off the anticipated source for the employment of a still larger number, who were then pupils, compelled them also to seek for practice in some other field than that to which they had destined themselves. The army and navy have since been comparatively closed to the profession; the number of surgeons required for the service of either has borne no proportion to the number that could, with profit to all, have been supplied. The new colonies again, to which such multitudes of all occupations are annually flocking, and by which so many of the various trades in the mother country are relieved of their superabundant supply of hands, are of comparatively little advantage to the members of our own, and the other professions; for at present the wide extent of country over which the settlers are scattered, and the insufficient remuneration that they can offer, render it barely possible for any considerable number of medical men to obtain a profitable practice; and hence the greater number of those whom we have known going out to Australia, New Zealand, and other parts, have contemplated resigning their profession (except for domestic purposes), and engaging in some of the staple trades of the colony.* Again, and which is perhaps of yet more influence, the druggists, whose numbers have of late years increased so greatly, are now, almost to a man, medical practitioners, and occupying almost precisely the situation which was filled by the majority of the apothecaries anterior to the year 1815. They engross the greater portion of what, though it is called small practice, has always produced large profits. Add to this, the amount which is annually expended in the constantly increasing dispensaries (of which it may be fairly calculated that at least three-fourths was formerly paid to medical practitioners), and some idea may be formed of the decrease of the profits which our profession has suffered.

It may be, as we have said, a consolation to the present race of practitioners to know that the evil is now curing itself, and to be able, by the evidence of the decreasing number of students, to assure themselves that at least the younger members may expect to see better days. The medical profession must always be sufficient to give its members a certain rank in society; in short, to make those of them, whose conduct does not neutralize its benefits, gentlemen. It cannot, therefore, ever cease to be a desirable profession for those whose means are sufficient to enable them to live for a time with but small remuneration for their educational expenditure. The increased expense of education, and the smaller profits of practice, therefore, will have less influence than might be expected on those whose association will be the most honourable to the profession: and that this is the case is proved by that which we have long observed, and which the public are now readily acknowledging—we mean the remarkable superiority of the medical students of late, over those of former years.

MR. WARBURTON'S BILL.

Our readers will, we doubt not, do us the justice to admit, that our estimate of Mr. Warburton and his organs of legislation has been correct throughout. From the beginning, as the pages of this journal show, we scouted the idea of his ever doing any thing that would prove satisfactory to the profession; and while certain of our contemporaries, who have now at length thrown him overboard, were lauding him to the echo, we, and for a long period we alone, denounced his proceedings, and ridiculed the idea of his having either the will or the talent to benefit the members of our profession. Well, after a most memorable Parliamentary Committee—after an immense expense and great delay—after expectations often raised, and hopes as often deferred, at length, just at the close of last session, a bill was actually introduced—too late, indeed, to do more than just secure its being ushered into the world—under the auspices of Mr. Warburton, Mr. Wakley, and Mr. Hawes. Such was the eagerness to forward it, that the ordinary forms were overstepped, to secure the speedy delivery of the progeny which had been so many years in the incubation. And such a progeny—such a crude, deformed, ill-favoured abortion, at the end of seven years' gestation, that all who have looked upon it, friends and foes alike, unite in their expressions of abhorrence. A pretty specimen, assuredly, of liberal legislation, for an honourable profession to have laymen to control them in their governing body, and the minister of the day to regulate and supervise the expenditure of their funds! The plan altogether is more preposterous and absurd than those who have not studied it can imagine, and it might be very truly designated, " A bill to incommode, degrade, and oppress the regular members of the medical profession, and give support and encouragement to quackery." And this comes at last of all Mr. Warburton's labours, and cogitations, and procrastinations. Never was the hackneyed quotation, " parturiunt montes," &c. more entirely applicable, if we regard the value of the produce; though, if we reckon the quantity of foolscap, the estimate must be something different.

As we have said, all parties are equally disgusted with it—even Mr. Wakley, who lent his name to the bill, which he is now most anxious to assure us he had never seen, affrighted by the shout of indignation with which it has been received, has thrown his friend overboard, and now eagerly joins in the cry against him. He attributes all the tyrannical folly of the bill to Mr. Warburton's having formed his opinion of the profession at large from the medical corporations. Nonsense: Mr. Warburton is not so great a fool as his ci-devant coadjutor would make him. He examined both sides of the question, and men of all parties, on his most tedious, and, as it now proves, most useless committee—nay, he paid the chief attention to those who were hostile to existing institutions. Tell us not, therefore, of his being misled. No, no; the bill is fairly to be taken as the estimate of the medical profession formed by Mr. Wakley's friend, the honourable member for Bridport, who proposes that we shall be taxed to purchase chains for ourselves; that laymen be introduced into our governing bodies; and that the expenditure of our funds, raised by a new and extraordinary exaction, be regulated by the minister of the day!

We end as we began, by declaring, that low as our estimate of Mr. Warburton, in reference to his legislation for us, has ever been, and openly and freely as we have always declared this, the present bill exceeds in folly and oppression any thing we had anticipated; and if passed, (of which, thank heaven, there is not the slightest risk), would surpass in tyrannical folly any modern specimen of legislation with which it is our lot to be acquainted.

CLINICAL LECTURES,

By W. Davidson, M.D.,

One of the Physicians to the Glasgow Royal Infirmary, and Lecturer on Materia Medica.

DIABETES MELLITUS.

Iodic Acid as a Test of Uric Acid. Exciting Causes and Pathology of Diabetes. Existence of Sugar in the Blood and various Secretions. Treatment. Apparent benefit from the Nitrate of Silver.

Henry M'Ewan, admitted on the 21st of December, 1839, ætat. 25: weaver, small, thin, and lax in his habit of body. Complains of general debility, dragging pains in his back and loins, weakness and coldness of lower extremities, and occasional headache. Is much troubled with a voracious appetite, urgent thirst, uneasiness about the stomach, and frequent calls to void urine. Urine passed generally amounts to about fifteen pounds daily, has a saccharine taste, is of a pale colour, and of sp. gr. 10·38. Tongue white, bowels regular, skin dry, pulse 90. Has been ill nine months, and was on two occasions relieved by large doses of opium and animal diet.

This case is characterised by the usual diagnostic symptoms of the disease, viz. great thirst, increased appetite, emaciation, lassitude, weakness in loins, greatly increased secretion of urine, which has a high specific gravity, and contains a large quantity of saccharine matter. The urine, when newly passed, is quite limpid, has a greenish hue, reddens litmus paper, and has a faint peculiar odour; not, however, like new hay, as has been described by some authors. It is very saccharine to the taste, becomes pale and opalescent on standing for some hours, and ferments briskly on the addition of yeast. No precipitate is thrown down from it, by heat or nitric acid. Its sp. gr. has ranged from 10·31 to 10·40, and the amount has varied from twenty-three to twelve pounds. The extract which is furnished by the evaporation of the urine, with an ordinary heat, is dark coloured, very sweet, and amounts to 39⅓ grains in 500; but when the steam-bath is employed, and the evaporation conducted slowly, it assumes a granular form, and is whitish. The chemical constituents of this urine, with respect to urea, has not been examined, as there seems no reason to believe that it differs from that of other diabetic patients; but as the amount of uric acid in mellitic urine has not hitherto been so much investigated, we tried iodic acid as a test for this constituent. Iodic acid is well known to be decomposed by morphia, and is generally described by chemical authors as a test for this proximate principle; but it is also decomposed by uric acid, as we have stated in the MEDICAL GAZETTE. It is mentioned by some writers on diabetes that though the other saline constituents exist in the usual proportion, there is an invariable deficiency of uric acid in the urine of diabetic patients; and as the ordinary method of detecting uric acid in diabetic urine by means of nitric acid is rendered obscure, if not fallacious, by the presence of saccharine matter, the iodic acid was employed.

When iodic acid and gelatinous starch, recently prepared, are added to healthy urine, and agitation employed, in a short time, but varying according to circumstances, the odour of iodine is disengaged, and a pretty deep indigo-blue colour and precipitate are produced. When iodic acid and starch were added to the urine of our patient, no change of colour was observed for about a week; but after that period the fluid became slightly brownish, then purple, and, in the course of about a fortnight, it assumed a deep-blue colour, and deposited a similar precipitate. When some of this urine was fermented, so as to destroy a considerable portion of the saccharine matter, the action of the iodic acid was much more rapid; and in order to show still farther the influence of this principle, we mixed equal parts of healthy and diabetic urine, and added iodic acid and starch to them, but no change of colour was observed for nearly a week, after which period the blue colour and precipitate were rapidly developed. It appears, from these experiments, that the reaction of the iodic acid is retarded by the presence of saccharine matter in the urine, but that it is still available as an excellent test of the presence of uric acid in this fluid, provided sufficient time be allowed for the production of the change, or the sugar be previously decomposed by fermentation.

Exciting causes and seat of the disease.—The cause or causes which excited the disease in this patient are not known, but he ascribes it to working in a damp shop. It was accompanied, in its early stages, by derangement of the digestive organs, viz., acidity, eructations, constipation, &c., as it is frequently in many other cases; but although it is probable that these symptoms preceded the formation of saccharine urine, there is no evidence existing on this point, as he does not recollect any thing particular, except being weak, unwell, and of having frequent calls to pass urine.

The pathology of diabetes is involved in almost perfect obscurity. Its seat has been referred alternately to the kidneys, and to the digestive organs, and by some authors to both; and although the first organs have frequently been found in a hypertrophied or other morbid condition, yet, in a certain number of cases, they have been found perfectly normal, evidently proving that organic disease in them is not an anatomical character of the disease. And we have frequently found the kidneys in a morbid condition in inspections of typhoid patients, where no disease, connected with the urinary organs, existed. We believe that the stomach has been still less frequently found in a morbid state, so that, as far as pathological investigations can throw light upon this disease, we are utterly in the dark. It is important, however, that we form some theory respecting the seat of the disease, if it can be grounded on facts and experiments; for though it may not, at present, enable us to treat it more successfully than was done during the time when its chemical history ,was more imperfectly known, still it may ultimately lead, either to the employment of some agent of a curative nature, or to some prophylactic measure where the disease may be expected to occur, as there is reason to believe that it is sometimes hereditary. Where, then, is the seat of the disease? Is it in the digestive organs, the kidneys, or lungs, or in all of them? It has of late been rendered extremely probable that the disease is intimately connected with a peculiar derangement of the assimilating organs. These have, in a great majority of cases, been palpably affected, and generally the disease occurs in persons of a dyspeptic habit of body. This being a far more constant concomitant of the affection than any other symptom, except the saccharine state of the urine, tends very much to support this view. Mr. M'Gregor, of Glasgow, has shewn that both in healthy and in diabetic persons, fed upon a vegeto-animal diet, sugar is contained in the contents of the stomach; and he deduces this conclusion from experiments, in which the contents of the stomach were evacuated by an emetic, and were afterwards briskly fermented by the addition of yeast. Mr. M'Gregor also fed healthy individuals with roast beef and water exclusively, for three successive days, and found, at the end of this period, that the vomited matters gave no signs of fermentation; but when the same treatment was adopted in two diabetic patients, he found that fermentation was produced in the contents of the stomach, on the addition of yeast, though not so briskly as in his former trials. These experiments are very important, and tend very strongly to prove the extensive formation of sugar in the stomachs of diabetic patients; but it would, in our opinion, elucidate this point still further, were the author to extend his experiments to an ordinary dyspeptic stomach; for certainly fermentation very frequently occurs in the contents of that organ when it is functionally or organically diseased, as is indicated by the formation of acid and disengagement of gas. And if it should be found that even animal food underwent a species of fermentation with yeast, after it had remained a certain time in a stomach functionally deranged, the conclusion would be nearly inevitable that it was not merely the formation of sugar in that organ that was the cause of the diabetic phenomena. Mr. M'Gregor's experiments, however, when coupled with the fact that the blood, in diabetic patients, contains sugar, tend very strongly to prove that the assimilating functions, and not the kidneys, are at fault in this disease—at least as far as the formation of sugar is concerned. Sugar has been shewn to exist in the blood of diabetic patients by Ambrasiani, Rees, Maitland, &c., and Mr. M'Gregor has confirmed these experiments by the production of fermentation in the serum of this fluid. In the Journ. de Chimie Medicale, for December, 1839, there is recorded an analysis of diabetic blood and urine by M. Müller, of Madebach. In twelve ounces of the former he found one drachm five grains of sugar; and in fifty ounces of the latter two ounces, three drachms, and thirty-seven grains. Mr. M'Gregor has also detected sugar in the saliva and excrementitious matters of diabetic patients, and even traces of this substance in the blood of healthy persons, when fed on vegetable diet. If, then, it be proved that sugar is formed in the stomachs of both healthy and diabetic persons, who feed upon a mixed diet of animal and vegetable food, how does it happen that sugar is found in such abundance in the blood and urine of the latter? Is it the superabundance of the sugar which renders its total conversion into chyme or chyle impossible? or is the diseased stomach incapable of assimilating sugar in any proportion? This question cannot be solved in the present state of our knowledge; but it is highly probable that, if sugar be at all capable of assimilation, it is only in a small proportion; for the quantity of it which is discharged by the urine in twenty-four hours is sometimes enormous. Indeed, the assimilating powers of the digestive organs over animal food must also be very small; for patients are not found to increase materially in weight upon this diet any more than upon one mixed with vegetables; and unless we suppose that the whole of its nutrient principles are converted into sugar, which is by no means probable, its assimilation into pure chyle must also be accomplished in very small quantity. And it has been found that, though animal diet often diminishes the formation of sugar to a very considerable extent, yet that the amount of urea is always uniformly increased, though not on account of the decrease of sugar, as has been conjectured. The quantity of urea passed by a healthy individual daily, according to Mr. M'Gregor, may vary from 362 to 428·5 grains; but in some cases of diabetes he has found it amount to 1013·5; the sp. gr. of the urine being 1039, even when the patient had been subjected to no treatment. This fact tends to show that more of the nutrient principles of animal diet are carried out of the system, in the form of urea, than in health, unless we suppose that, in all the cases in which this excess was found, double or treble the usual quantity of *nitrogenated* food was consumed.

It is maintained by some authors that this superabundant quantity of sugar in the blood acts as a poison to the system, and hence induces the fatal termination which almost uniformly follows this disease. This hypothesis is very plausible, and certainly can be supported by very cogent and analogous arguments, as it has generally been found that foreign substances introduced into the blood, however bland, induce disease or death in the animals experimented with; but if it does act as a poison it is undoubtedly extremely slow in its operation. But if we suppose, as stated by Mr. M'Gregor, that healthy blood contains a small portion of sugar, the circulation of a certain amount of this ingredient will be quite compatible with health; therefore it will not be so obnoxious or deadly, in an increased proportion, as if it were totally foreign to its constitution, and may, consequently, require a much longer period to effect its fatal influence. But another hypothesis may be brought forward, capable also of being supported by very cogent arguments, viz., that diabetic patients sometimes die of inanition. The quantity of saccharine matter which is daily evacuated from the system, without contributing to its support, is very great, and there must be left a very small portion of nutritious material to supply the wear and tear of the system. Thus, suppose that a pint of urine (as Dr. Henry has established), of the average sp. gr. 1040, contains 1 oz. 4 drs. 2 scr. 6 grs. of solid extract, 20 pounds of such urine will contain about two pounds of solid extract, a large proportion of which is saccharine matter. The appearance which the patient assumes, in the latter stages, tends to support this view, viz., his emaciation, feebleness, hollow countenance, &c. At the same time it must be acknowledged that both the views we have given are quite hypothetical, and neither may individually account for all the facts connected with the history of the disease; but if the two theories be conjoined, that is to say, if both the poisonous effects of the saccharine matter and the defective nutriment of the system be taken into calculation, the view will be sufficient to account for the fatal termination, although it is possible that future discoveries may throw an entirely new light upon this subject.

Treatment.—The treatment of this disease may be included in the following catalogue of remedies, viz. 1st, animal diet; 2d, opium; 3d, diaphoretics; 4th, bleeding; 5th, astringents. In the treatment of our patient, we have chiefly employed the three first, viz. a diet composed chiefly of animal food, opium, and diaphoretics, including the warm bath. His daily diet, at present, consists of 38 ounces of milk, 12 ounces of soup, without vegetables, 10 ounces of bread, and 18 ounces of steak. On his admission he was treated with four grains of opium and half a drachm of Dover's powder daily, along with the warm bath every second night. This treatment did not, to any great extent, diminish the amount of urine, and on the 31st of December the opium was increased to eight grains, combined with a little calomel, which affected his mouth in about ten days, with diminution of the urine from 21 to 15 pounds. As soon, however, as the effects of the mercury disappeared, the amount increased, although the quantity of opium was the same as when exhibited along with the mercurial.

Some time ago, we observed in the MEDICAL GAZETTE a formula by Dr. Todd, which he proposed to employ in cases of dyspepsia, viz. an artificial digestive fluid, prepared from rennet or the fourth stomach of a calf. Having formed the opinion that the proximate cause of diabetes was intimately connected with the digestive process, we considered it a fair experiment, to test its power upon a patient affected with this disease. We could not procure the fresh stomach of the calf at the time; but received a sufficient supply of salted rennet, such as is used by farmers for coagulating milk. This appeared to us likely to contain a sufficient quantity of gastric juice for a trial. The following is the formula:—

℞. Rennet, 6 grs.; muriatic acid, 6 grs.; water, ℥ij.

Half an ounce of this infusion was at first taken daily after meals, diluted with seven or eight times its weight of water; and the quantity was afterwards increased to one ounce. He continued this preparation for several weeks, but it seemed to have no effect in diminishing the quantity or saccharine contents of the urine. We tried the same infusion made with fresh rennet, in the case of a patient in ward No. 3, with nearly the same results.

Having thus failed in producing any impression on the disease by this agent, he was finally treated with the following mixture:—

℞. Tr. Opii., ℥j.; Vin. Ipecac., ℥ss.
M. Cap. ʒj.; 6ta. quaque hora.

His diet was also reduced to the following: 24 ounces of milk, 16 ounces of steak, 12 ounces of bread. Under this treatment for about three weeks, his urine was reduced to about twelve pounds on the 29th of February, when he left the hospital. We have no doubt that the amount of urine, in this case, might have been much more diminished, if the quantity of opium had been increased, such as to 30 or even to 60 grains in twenty-four hours; for it has been ascertained, by repeated experiments, that large doses have diminished the amount of urine to its natural quantity, or even below it; but its specific gravity is not diminished by such treatment, and, on the contrary, is often increased. There is generally also a great increase of urea, which is sometimes capable of being crystallized, simply by the addition of nitric acid to the urine, and which, being decomposed in the bladder, may give rise to the formation of carbonate of ammonia.

These large doses of opium have scarcely ever produced any permanent cures, and they are attended with very considerable risk, by the production of inflammatory action in the chest, such as pleurisy. And even though inflammation should not be produced, the patient is left so exhausted, after the use of it (from its injurious effects) that he is more likely to sink from exhaustion.

We have used a combination of opium and nitrate of silver in two cases, with considerable diminution of the quantity of urine. M. Fleming was admitted on the 10th of March, 1840; his urine was very saccharine, and varied in specific gravity from 1030 to 1038. He was treated with the warm bath, Dover's powders, rennet, &c. but with very little effect; notwithstanding that he perspired very copiously during this period. He was put on the use of the following pills on the 27th of May, when his urine was about 20 pounds, and was dismissed on the 23d of June, with it reduced to 13 pounds.

℞. P. Nit. Argent. ʒss.; P. Opii. ʒj.
M. Fiant pilulæ lx. Cap. j. 6ta. q. q. horâ.

Another case, viz. James Dick, admitted on the 14th of February, 1840, with severe dyspeptic symptoms. A pill, composed of three quarters of a grain of nitrate of silver, and one grain of opium, was prescribed every sixth hour; which he afterwards took six times a day. His urine was about 20 pounds on his admission, and when dismissed on the 4th of April, it was reduced to 11 pounds.

A diet consisting chiefly of animal food is perhaps the most important part of the treatment; for the saccharine matter, which is formed from it, is greatly less than what is formed from vegetable food; and this must diminish the injurious effects, which no doubt result from a large quantity of this principle circulating in the blood, even although the patient do not derive much more nutriment from it than from the other. At the same time, we are of opinion that, like opium, this plan of treatment may be pushed to an extreme; for it has been established, that a diet consisting exclusively of animal principles, will occasion, in a longer or shorter time, disease in the system, which may ultimately prove fatal. It is, therefore, the safer course, to combine with the animal diet a small portion of vegetable food, such as does not readily run into the acetous fermentation, of which bread, rice, arrowroot, sago, &c. are the best.

[To be continued]

PROVINCIAL MEDICAL ASSOCIATION—EASTERN BRANCH.

The annual meeting of this society was held at Bury St. Edmund's, on Monday last, The meeting for transacting the business of the society, and for hearing read whatever essays might be contributed, was held at the Guildhall, at 12 o'clock. Mr. C. Smith was unanimously called to the chair.

The report, which was read by the Honorary Secretary, Dr. Crosse, contained a very favourable account of the state and prospects of the Association, and a strong appeal to the members in favour of the effort to procure medical reform by legislative measures.

Papers were then read on the following subjects:—Mr. Ewing on chronic laryngitis, Mr. Copeman on bleeding in apoplexy, Dr. Arnold on an improvement on the stethoscope, by substituting metal for wood, the latter being a bad conductor of sound, and affected by atmospheric influence; Mr. Nunn on dysphagia; Mr. Crosse on a case of prolapsus linguæ, in illustration of which several plaster-of-Paris models of the protrusion were exhibited, with a sketch of the internal portion of the jaw; and Dr. Hake on ossification of the various kinds of calcareous deposits.

Ipswich was appointed the place for the next meeting of the society.

Mr. Jefferson wished to make a remark or two upon a clause in a recent act of Parliament for the extension of vaccination. It was intended, and would have the effect of compelling medical men, who were Union surgeons, to vaccinate all those who might choose to apply to them, for the charge of 18d.: this he thought was degrading to the profession. He was perfectly willing to extend vaccination and to perform it upon the poor for an 18d. fee, but he did not like to do it for his regular patient, the little tradesman or the little farmer, who would then be entitled to demand it. He wished very much to have the sense of the meeting upon the subject.

Mr. Young thought the intention of the legislature was that the poor should have the opportunity of going to a medical man, and being vaccinated for that fee, but the act never could contemplate that those who could afford to pay a larger amount should demand to be vaccinated for that sum.

Dr. Bree said the sum allowed under the Poor Law Act of Elizabeth (half a crown) was barely sufficient to remunerate a medical man in tolerable practice for two attendances, and for dispelling the prejudices from the minds of the poor. When he first received the situation he held as surgeon to the Union he offered to vaccinate any poor person who should apply to him, gratis, simply because he wished to shew that he was friendly to the protection afforded by vaccination.

Dr. Crosse thought the amount of remuneration proposed by the Poor Law Commissioners for vaccination was quite as good as in any other department of pauper attendance, and he really hoped that no respectable patient would take undue advantage of the 1s. 6d. fee. He would propose (which was carried) a resolution that a committee be formed, to consist of Messrs Jefferson, Day, and Bree, to hold communication on this subject with Mr. Chadwick, the Poor Law Commissioner, who had the sole direction of these matters.

After thanks had been voted to the Chairman, the meeting adjourned, to dine at the Angel.

METEOROLOGICAL JOURNAL.

Kept at Edmonton, *Latitude* 51° 37 32" *N.*
Longitude 0° 3' 51" *W. of Greenwich.*

Sept.	Thermometer.		Barometer.	
Wednesday 30	from 42 to 57		29·84 to 29·90	
Oct.				
Thursday . 1	51	59	29·90	30·00
Friday . . 2	47	58	30·06	30·11
Saturday . 3	37	57	30·10	30·03
Sunday . . 4	45	58	29·99	30·01
Monday . . 5	44	55	30·00	30·04
Tuesday . 6	37	58	30·04	30·03

Wind S.W. on the 30th ults. and 1st inst.; North on the 2d, and three following days; N.W. on the 6th.

On the 30th ults. clear; the 1st inst. and morning of the 2d, cloudy; afternoon of the 2d, and following day, generally clear; a few drops of rain on the evening of the 3d; the 4th generally clear, rain at times; the 5th morning cloudy, otherwise clear, with rain; the 6th generally clear.

Rain fallen, ·055 of an inch.

Charles Henry Adams.

Wilson & Ogilvy, 57, Skinner Street, London.

THE
LONDON MEDICAL GAZETTE,
BEING A
WEEKLY JOURNAL
OF
Medicine and the Collateral Sciences.

FRIDAY, OCTOBER 16, 1840.

LECTURES ON THE PRINCIPLES AND PRACTICE OF PHYSIC,

Delivered at King's College, London,

BY DR. WATSON.

LECTURE IV.

Morbid alterations of the fluids, especially of the blood. Changes in its quantity and distribution. General and local plethora. Poverty of blood. Active congestion—its phænomena—state of the vessels as seen by the microscope. Mechanical congestion. Passive congestion. Relations of these forms of congestion to inflammations — to hæmorrhages — to dropsies.

AFTER running over the principal alterations to which the solid parts of the body are liable, we were beginning to enquire into those no less important morbid changes which are apt to take place in its fluid constituents. I reminded you that, respecting the whole of this subject, pathologists had passed from one extreme of opinion to another: that for a very long period the *humoral pathology* prevailed in the schools, and that in times not very remote from our own it was entirely superseded by the opposite doctrine of exclusive *solidism.* It is strange that either misconception should have so long maintained its ground.

If we consider the definite relation subsisting between the solids and the fluids of the body, and the unceasing agencies which they mutually exercise on each other—how, for instance, on the one hand, all the solids are originally built up, and are afterwards perpetually nourished and sustained by materials furnished from the blood—how, again, on the other hand, some of the solids are continually employed in the reciprocal office of feeding and renewing the blood, while others are as constantly busy in decompounding it by the various secretions—we cannot avoid perceiving that distinctions of the kind I have mentioned, founded upon mere differences of consistence, are futile; that no notable alteration can take place in the solids of the body which will not soon affect in some way its fluids; and that every important change in its fluids must lead to a corresponding and proportionate modification of its solids: in fine, that the dispute between the solidists and the humoralists was altogether baseless and unprofitable.

The animal fluids are—the blood, the fluids that enter the blood, and the fluids that proceed from the blood.

The fluids that enter the blood are of two kinds.

1. Those by which it is renewed and enriched.

2. Those which enter it in order that they may be conveyed out of the body.

Now although we cannot doubt that any considerable modification of the fluids that feed and renovate the blood, and particularly of the chyle, must have a direct influence upon its composition and quality, we really know but little about them, except in their effects. We seldom have any means of procuring these the first products of nutrition, so as to examine them, or to test their qualities. Yet we can perceive causes that are likely to deteriorate or deprave those fluids (unfit aliment, impure air), and we know that under the continued operation of such causes, the blood, replenished by these fluids, *is* actually and sensibly modified.

Again, we cannot doubt that some of the matters derived from the body itself, and taken into the blood in order to be conveyed away, may, and often do, directly alter and contaminate the blood, and act as poisons upon the system: matters, for instance, absorbed from parts of the body that are diseased, or dead and putrefying; in this way, doubtless, disorders which were at first strictly local may come to affect the whole economy: — matters, again, which though harmless in minute quantity, become noxious when retained and accumulated in the blood, in consequence of faulty or deficient action of the organs destined to eliminate them from the circulating fluid. The injurious effects of some of the substances which thus become deleterious — as urea, of which the blood, during health, is continually purified by the kidneys, and bile, which is naturally separated therefrom by the liver, and carbonic acid, which it is the office of the lungs to excrete—will furnish topics of interesting enquiry hereafter.

The fluids that *leave* the blood may be considered under a threefold division.

1. Those which are directly expended in the growth or maintenance of parts, some of them becoming fixed and solid, and others retaining their fluid condition. Of these the principal alterations have been briefly pointed out among the *lesions of nutrition*.

2. Those that are employed in aid of some definite function of the body: as the saliva, the gastric juice, the bile, the pancreatic secretion, the tears, the synovia of the joints, and so on. Now these may be secreted in excessive abundance, or in too scanty quantity, or of imperfect quality, or not at all:— and all, or any, of these deviations from the healthy standard may be the result of very serious disease, or may cause very serious disease: and they will be spoken of hereafter when the disorders of the parts or functions connected with each shall be discussed.

3. Those which are separated from the blood merely to be excreted — as the urine, certain secretions from the bowels, and from the bronchi and skin. Some of these are extremely worthy of study, as indications of disease; but they require no particular consideration in this part of the course.

Dismissing, therefore, for the present, all further account, as well of the fluids that concur to form the blood, as of the fluids that issue from the blood, let us enquire what morbid changes the blood itself is liable to undergo.

The blood, then, is subject, first, to remarkable variations in its *quantity*, both in respect to the whole system, and in respect to particular organs and tissues.

2. Closely connected with these differences of quantity is the variety which is observable in regard to the proportions between the several constituents of the blood. The changes that occur of this kind are sometimes strikingly evident to our senses. For example, we not unfrequently perceive that the blood drawn from a vein is thinner, manifestly more watery, less rich in fibrin and in colouring matter, than blood of the standard quality.

3. Again, independently of mere alterations in the relative proportions of its constituent parts, the blood is liable to great change in its chemical composition, and, therefore, in its physical quality. This appears to be the case in sea-scurvy, and in the analogous disease called purpura, and it is doubtless so in many other complaints.

Diseases of the alimentary canal, interfering with the process of chylification, must affect the blood: diseases of the organs of respiration, interfering with the arterialization of the blood, will alter it: diseases of other channels of excretion—the bowels, the biliary apparatus, the kidneys, the skin—will (as I have already hinted) indirectly contaminate it: so will various foreign matters, gaining entrance, as they may when in solution or in a gaseous state, through artery, vein, or any membranous structure, such as bladder and intestine: and so, also, there is good reason to believe, will certain states of the nervous system.

But contenting myself with having indicated these latter changes, or sources of change, I shall defer giving a more particular account of any except those that relate to the *quantity* and the *distribution* of the blood.

I say the blood may undergo important alterations in its *quantity*. It may exist in too great abundance throughout the body; and it may exist in too great abundance in certain parts only of the body. These states have been recognised for ages. Sometimes they are called respectively general and partial *plethora*; sometimes general and local *congestions* of blood; people speak also of irregular *determinations* of blood to different organs; and, of late, the term *hyperæmia*, first invented by M. Andral, in France, has been imported into this country, and much adopted here: all these words and phrases mean, in truth, the same thing; and their frequent recurrence in medical works, is, of itself, sufficient evidence of the frequency and importance of the conditions which they express.

If we comprehend rightly this subject of plethora or congestion, we shall be prepared to understand some most important morbid states, of which it seems to be in many, if not in all cases, the earliest approach—the initial step. Inflammation, hæmorrhage, dropsy, all acknowledge and imply a previous condition of congestion. "There is probably," says Dr. Alison, "no kind of diseased action of which any part of the living body is susceptible, which is not connected, sooner or later, with increased afflux of blood towards that part, either as its cause or its effect; and the immediate object of all our most powerful remedies is to act on these irregularities of the circulation."

That the blood *may be* differently distributed in the capillaries at different times, we know by the variable colour of the surface, which depends upon the varying degrees of fulness of the cutaneous blood-vessels. The phenomenon of blushing, the red cheek of anger, the heightened colour of the skin under brisk exercise, are familiar facts illustrative of partial plethora of the capillaries, consistent with health.

There are reasons (which I shall hereafter lay before you), for believing that a similar sudden accumulation of blood, taking place in internal parts, may sensibly disturb their functions; causing transient fits of giddiness, insensibility, and sometimes death itself, when the congestion affects the *cerebral* blood-vessels, and attacks of difficult breathing when the capillaries of the *pulmonary* tissue are concerned; and even *these* attacks, for aught that I know, may end fatally.

It often happens that when certain portions of the surface, as the cheeks, are visibly redder and fuller of blood than usual, or when such symptoms as I have just referred to denote the probability of some internal congestion, other parts of the surface, as in the extremities, are visibly paler: and there are, at the same time, corresponding and palpable differences of temperature.

Perhaps it may not be so obvious that the whole quantity of blood, throughout the body, is sometimes in excess.

That in the adult state, when the growth or increase of the body has been completed, blood may be made in greater abundance, and more rich in the materials of nutrition than the wants of the body require, is not only conceivable, but true. We are able to assign circumstances in which this is likely to happen, and we find that under such circumstances it actually does happen. Full living, and a sedentary life, are causes likely to occasion general plethora — and they do occasion it. The full diet, so long as the digestive powers are perfect, provides more chyle, conducts into the blood a larger quantity of its proper pabulum. The sedentary life precludes that freer circulation of the blood, and that more liberal expenditure of it through the skin, and by means of the other organs of secretion, which would occur under more active habits. Persons thus circumstanced are apt to grow fat; the adipous tissue seeming, in these cases, to form a kind of safety valve for the diversion of the superfluous blood. Such persons have turgid and florid cheeks, red lips, red mucous membranes, and (not uncommonly) ferretty eyes. Their entire vascular system is preternaturally distended. If you open a vein, you find that they bear a large abstraction of blood without fainting, and are even refreshed by it; and the blood drawn separates into a large and firm mass of coagulum, with but little serum. Keeping to the nomenclature we have already employed, we might say that there is here *hypertrophy* of the blood.

When inflammation arises in the subjects of this general plethora, it runs high, and requires active treatment. But they are not, as you might naturally expect them to be, and as many writers state them to be, peculiarly prone to suffer inflammatory complaints. There is general fulness of the vascular system, but no irregularity, nor any necessary tendency to irregularity, in the distribution of the blood.

You will observe that the relative proportion of the more solid to the more fluid constituents of the blood is increased in these cases of general plethora: the blood is not only more abundant, but it is richer also in fibrin, and in red particles.

The means to be adopted for redressing this unnatural and unsafe condition of the circulation, are those which common sense would suggest. The abstraction of a part of the superfluous blood, a more restricted diet, a larger allowance of active exercise.

It will be worth our while to contrast this state of general plethora with its opposite—that in which the blood is scanty and poor—what Andral calls (though with questionable propriety) *anæmia*. *Oligæmia* is the cacophonous but more exact name assigned to it by Gendrin; but *poverty of blood* is the ordinary English phrase for it, and the best. This is a state which we can produce at will, by abstracting blood from the body in moderate quantity, but repeatedly, and at short intervals. It occurs, also, frequently, in spontaneous disease, and from various causes; from a privation of the materials destined to replenish the blood; and in cases in which these materials appear to be turned to little account, as in chlorotic girls. We see it in those who habitually and frequently lose a certain quantity of blood, in disease; in persons, for example, who are subject to piles, and who bleed daily from the rectum; still oftener in women who suffer repeated hæmorrhages from the uterus. When the drain has been long continued, these persons become very pale; even those parts which are naturally most red, as the lips and tongue, become almost white; their faces look like wax; and if still you draw blood from a vein, and allow it to coagulate, you will have a small clot floating in an abundance of serum, and that small clot will be of a light rosy colour; showing a great diminution in the proportion of fibrin, and a still greater deficiency of the red particles. The blood, as they say, is "turned into water." It is a curious pathological fact, that the red particles require more time for their restoration than the other constituents of the blood. And I may mention to you now, what I shall have to repeat, that in conjunction with the obvious curative measures comprised in arresting the habitual loss of the vital fluid, and in affording sufficient nutriment to the system, the preparations of iron, and the respiration of pure air, have signal efficacy in renewing the red particles, and giving back again their native hue of redness to the cheek and lips.

In general plethora every part is preternaturally full of blood, and the blood itself is full of the elements of nutrition. General plethora therefore implies, *in one sense*, local plethora of every organ and tissue. In strictness, however, local plethora is only predicable of a part that contains more than its share of red blood.

Now the converse of this is not true, as it might be expected to be, of the opposite condition. A deficiency in the whole mass of blood contained in, and circulating through the body, does not protect the *parts* of the body from congestion—from having an undue quantity of blood sent to them. Far from it. Local determinations of blood are *very common* in persons in whom the mass of that fluid, and the proportion of its nutritive materials, have been considerably diminished by disease, or by hæmorrhage.

This remarkable tendency, under such circumstances, to an unequal distribution of the blood in the capillaries, admits (I think) of this explanation. A due supply of healthy blood is requisite for the steady and equable performance of the functions of the brain and nerves. When this supply is defective, or uncertain, those functions become disordered and irregular, and, in their turn, influence the various solids, disturb their action, and derange the balance of the circulation. That the capillary blood-vessels may be filled to excess, or completely emptied, by causes operating *through the nervous system*—by moral emotions, for example—we are sure from the phenomena just now adverted to, the blush of shame or anger, the paleness of fear; and there can be no doubt that *morbid* congestions, which sometimes are separated from those that are consistent with health by very slight shades of difference, are often determined through the agency of the same nervous system. And persons endowed with great sensibility or irritability of the nervous system are very liable to partial or irregular congestions of blood.

But this is not the only way in which local congestion may arise.

We can produce it; upon the surface of the body at least, at pleasure, and that in various ways: by friction, by exposing the part to a high temperature, by certain stimulating applications, mechanical (as a cupping-glass), or chemical (as a mustard poultice): we produce an injection of the small cutaneous blood-vessels; there is, evidently, more than the usual quantity of blood attracted to the part, or detained in the part—a degree of redness, which soon subsides if the cause of it be withdrawn in time.

Congestion thus occasioned is not inflammation, but it is the first step towards that complex process; and for that reason it deserves all your attention. Apply the exciting cause a little longer, or increase, in a slight degree, its intensity, and the phenomena of inflammation begin to manifest themselves.

I said we can produce local congestion, when we please, upon the *surface* of the body: but there can be no doubt that a similar state may be produced by analogous causes, in internal parts. Look at this representation of the stomach of a dog *(one of Dr. Roupell's plates)*. You see one portion of it of a bright red colour, actively and vividly congested. This was the consequence of a dose of alcohol. We may be certain that something of the same kind is the result of every visit to the gin shop.

Local congestion thus produced, or of this kind, is said to be *active*. M. Andral, whose nomenclature has come much into fashion of late years, calls it sthenic, or active hyperæmia. The arteries, perhaps, have more to do with it, in the first instance, than the veins. But it is in the capillary vessels, which are distinct from, and interposed between the minute arteries and veins, that further changes are wrought, when the process advances a stage beyond mere local plethora. What has been observed, by the aid of the microscope, with respect to the blood-vessels, I will endeavour to describe to you.

I take the account I am about to give you chiefly from Kaltenbrunner, a German pathologist, who has recently investigated the subject experimentally, and whose observations are believed to have been most carefully and skilfully conducted, and their results no less faithfully narrated. His observations were made upon the circulation as it appeared in the web of a frog's foot, under a powerful microscope. It would be idle, and something like committing a fraud upon you, were I to lay any stress upon my own knowledge or experience in this matter, for I cannot pretend to any great skill in the use of the microscope, and my opportunities of noticing, by its help, the phænomena of the circulation, have been too few to render their results of much value. Yet it may be in some degree satisfactory to you to know that I am not blindly repeating the remarks of others, and that what I *have* witnessed is perfectly in accordance with the statements of Kaltenbrunner, and affords me a strong assurance of his accuracy and fidelity. There is another reason, too, why I consider him the more trustworthy — he has no theories to which he might be disposed to bend or accommodate his facts.

Before I detail to you his account of the phænomena of congestion, I may briefly describe the scene which presents itself when the web of a frog's foot is looked at through a good microscope. It is a most beautiful and wonderful spectacle, and particularly interesting to those who, like ourselves, are desirous of gaining some insight into the healthy and diseased states of the circulation. It is a sight which I hope and believe you also will have many opportunities of seeing in this place. You perceive, then, occupying the circular field of the instrument, a number of blood-vessels, through which the blood, with its globules, is in active motion; and you see at once that there are three different kinds of vessels before you. First you notice the blood shooting with great velocity along tubes which divide and subdivide into smaller and smaller branches, each branch (speaking generally), going off at an obtuse angle: these are plainly arteries. Then, in another part of the field of view, you see the blood moving in the contrary direction, more slowly, in larger trunks, which are formed by the continual union and accession of smaller and tributary vessels of the same kind, that meet, for the most part, at acute angles: these you know to be veins; and all the intermediate and surrounding surface in view is occupied with other vessels or channels, which connect themselves with the ultimate ramifications of the arteries on the one hand, and with the primary radicles of the veins on the other, but which differ from both arteries and veins in these particulars — that they interlace and anastomose in all parts, in a very irregular manner, and at all angles, and that they retain every where the same uniform size; they neither collect into larger and larger trunks, nor separate into smaller and smaller branches, but are disposed like the threads forming the meshes of a net, except that the interstices are irregular in size and shape. These are the true capillaries, intermediate between the arteries and the veins, and perfectly distinct in character from each, but communicating and continuous with both.

If now you press upon the animal's leg, so as to obstruct the circulation a little, the motion of the blood is retarded, especially in the capillaries. You see the globules slowly following one another. These so-called globules are not spherical, but have an oblong form; and you may sometimes see one of them sticking in a capillary channel, its long diameter having got at right angles to the direction of the current: other globules accumulate behind it, till at last they all pass on again together.

Now Kaltenbrunner irritates the web by pricking it, and soon afterwards the following appearances present themselves:—There is an increased affiux of blood to the part, so that arteries, veins, and capillaries, receive a column of blood two or three times as great as usual; the velocity of the blood is accelerated; the distended sides of the vessels seem to tighten around the stream of blood which they contain. With this alteration of the circulation, the natural functions of the part begin to be modified. The change of the blood from arterial to venous is interrupted. The globules, passing with great rapidity through all the vessels, retain the characters of arterial globules even when they arrive at the veins; they present a bright colour, shew a tendency to stick together, and often form little clots, which pass through the capillaries and become visible in the veins.

One of the natural functions of the web is the secretion of a kind of lymph; but this secretion is now suspended. The parenchyma itself begins to be slightly tumid, and assumes a brighter tint than common.

All these phenomena begin from a circumscribed spot, of which the circumference gradually expands as the affection increases; and they cease insensibly at that circumference.

This is active congestion.

A certain period always intervenes between the first action of the irritant cause, and the commencement of true congestion. This period, the occurrence of which you will be good enough to bear in mind, Kaltenbrunner calls the period of *incubation*; the period in which the congestion is *hatching*.

Active congestion, as such, does not continue long. It either passes on into inflammation, as I shall hereafter explain, or it begins to decrease. When it has been very slight, the quantity of blood, and the rapidity of its movement, diminish gradually from the circumference towards the centre; and in this way the congestion insensibly vanishes.

But in other cases, when it has not been so slight, the congestion terminates by an evident crisis, which Kaltenbrunner thus describes:—The blood, receding from the circumference of the congested part towards the centre, gives out, by exhalation, a liquid. The exhalation takes place by fits, and here and there, through the sides of the capillary tubes, and generally on the surface of the organ. The moment of exhalation is very transient; but it is repeated often, and in different spots, until the congestion has disappeared. It is evidently critical, for the congestion is relieved and extinguished in proportion as the exhalation is repeated.

I shall follow these consequences of active and continued local congestion no further at present; but merely remind you again that the changes I have last mentioned constitute the earliest appreciable modification of structure leading or belonging to inflammation. What we thus may see (and it is what I myself have had some opportunities of seeing) in the transparent textures of animals, we reasonably infer to take place, under analogous circumstances, in those parts of the body which are internal and opake, and consequently hidden from our view.

I will just observe, also, that as active congestion is the parent of inflammation, so it sometimes causes hæmorrhage, and is relieved by it. But, comparing this form of congestion with another which I am about to mention, the connexion of hæmorrhage with it is, relatively, unfrequent.

One obvious mode of remedying this congestion is the mechanical abstraction of blood from the loaded part. But it is seldom that this measure alone suffices; and sometimes it would be ultimately hurtful to adopt it. The state of the constitution may be such, that the disposition to local plethora would be increased by the loss of blood. Disordered action and undue susceptibility of the nervous system are apt to be aggravated by bleeding; and in proportion as the nervous functions are irregularly performed, does the tendency to unequal distribution of blood in the capillary vessels augment: we have daily examples of this in hysterical young women. It is not, therefore, the mere congestion that we have to consider; we must look deeper, for its cause. Leave a small thorn in the finger—the blood will be collected there in consequence of its irritation—and will continue to collect in spite of depletion. But extract the thorn, and your remedial measure of taking away blood is at once successful. So it is also with internal congestions of blood—of which the exciting and sustaining cause is not always so well known.

Contrasted, in some important particulars, with active congestion such as I have been describing, is that morbid fulness of the capillary vessels which arises when the return of the blood from them towards the heart through the veins, is impeded by some *mechanical* obstacle. With this *mechanical congestion* the veins are exclusively concerned.

Congestion of this kind may be strictly local. It may be confined to a single limb, when the principal venous trunk belonging to that limb is compressed, or otherwise diminished in size; and when no collateral and compensatory channels for the returning blood have been established. If there be disease of the liver, of such a nature as to prevent a free passage of the blood through that organ, congestion will ensue in all those parts of the capillary system from which the blood is conveyed by the veins that ultimately concur to form the vena portæ. The force of gravity alone is sufficient to produce venous congestion, and consequently congestion of the capillaries, in parts of the body in which, under ordinary circumstances, the circulation through the veins is aided, instead of being opposed by that force. If, for instance, the head be suffered to hang downwards for a certain time, we see the unequivocal signs of such congestion in the tumid condition and the purplish red colour of the lips, cheeks, eyelids, and ears. When an impediment to the free transmission of blood exists in the heart itself, a tendency to stagnation is produced, first in the venæ cavæ, then in the smaller ramifications by which these veins are fed, and at length in the general system of capillary vessels: and thus even general congestion may proceed from a physical cause; the parts that are the most vascular being also the most readily and the most completely gorged.

There is yet a third form of local congestion, differing, in some respects, both from active and from mechanical congestion. The capillaries become loaded, and the course of the blood in them is languid and sluggish, without any previous increased velocity of the blood in the arteries, and independently of any mechanical obstacle in the veins. To this form of congestion the term *passive* is applied. Andral denominates it passive or asthenic hyperæmia. I will tell you the class of facts from the observation of which the real existence of this passive plethora has been ascertained.

In persons enfeebled by age, or by disease, the lower parts of the legs, the insteps and ankles, and the skin which forms the surface of old scars, are often habitually purplish, or violet coloured. There is congestion of dark blood in those parts. You may, perhaps, be ready to ascribe this to the mere influence of gravity upon the blood, but this cannot be the whole explanation, because the force of gravity is the same with all persons, and at all ages. A horizontal position of the limb will perhaps diminish the livid redness, or may even sometimes entirely remove it. But the depending position ought not to cause it, and would not cause it, if the blood-vessels were in a healthy condition. Neither can the difference of posture be any source of *irritation* to the congested part. The capillaries themselves appear to have lost, in a great degree, their natural elasticity; they easily dilate under the pressure of the blood, which, being thus retarded, accumulates in the part. The employment of friction, or some stimulating application, will often remove this congestion.

I say all this is often to be noticed when there has been no cause of irritation operating upon the part, and no preceding state of active congestion. But it is important to mark the very frequent connexion that exists between these contrasted conditions. The one very often succeeds the other: the vessels become dilated under the force of the active hyperæmia, and, the irritation ceasing, they do not at once recover their tone, but remain passively loaded and distended. They are frequently left in the same state upon the subsidence of inflammation.

Take another illustration from what you may any day witness in respect to indolent ulcers. You will find that the large, flabby, and livid granulations which they present, may be made to contract, and to assume a more healthy and florid hue, by local stimulants; these evidently act by quickening the previously languid circulation, and unloading the congested capillaries.

Observe, again, what not unfrequently happens in regard to the eye; a little organ, indeed, but one that supplies us with more striking lessons in pathology and therapeutics than any other portion of the body. You know that the conjunctiva and sclerotica, through which, while healthy, colourless fluids alone circulate, are traversed, under various forms of disease, by innumerable vessels bearing red blood. Now it is notorious that, in certain cases, the application of any stimulating substance to the surface of the organ will increase the existing redness, multiply the number of visible vessels, and aggravate the complaint. These are cases of active congestion, dependent upon irritation that is still subsisting. But it is equally well known to practical men that the blood-vessels of the eye are liable to congestion of a very different kind. They are seen to be distended, somewhat tortuous, almost varicose, and the redness has a browner tinge, and is less vivid, than in the former case. In this kind of vascular fulness—or in this *stage* of it, for it sometimes succeeds to active congestion — emollient applications do harm rather than good, while strongly astringent and even irritant substances will often promptly dissipate the vascularity. These, again, are cases illustrative of congestion of the asthenic or passive character. The strong topical irritants restore the feeble and relaxed vessels to their natural elasticity, stimulate them to contract upon their contents, and to force onwards the red blood, which they cease to admit from the arteries; and the redness vanishes.

In the production of *active* congestion the arteries appear to be principally concerned: in the production of *mechanical* congestion, the veins: in *passive* congestion, the capillaries—which, strictly, are neither arteries nor veins, but lie between the arteries and the veins—are the vessels chiefly in fault.

If we turn our thoughts from the visible textures of the body to those which are hidden internally, we shall find reason to believe that these also are equally liable to similar conditions of passive congestion. Take those exceedingly vascular organs, the lungs, through which the whole of the blood circulating in the living body has to pass. The lungs, as might be expected, are *very* liable to congestion and engorgement of their capillary vessels. Oft times this is clearly active, and the result of some irritating cause. But it is not always so. Many of you recollect the epidemic disorder called the influenza, which was so prevalent here in the spring of 1831, and again in the early part of 1837. Among the most constant and striking characters of the disease were the symptoms of pulmonary catarrh; and it was remarkable how long, in some persons, these symptoms persisted. After the pulse had regained its natural frequency of beat, and when all fever had ceased, the patient would continue to breathe with constraint and some labour, to wheeze a little, to cough, and to expectorate mucus. As all febrile disturbance had subsided, and no further benefit seemed to flow from adhering to what is called the antiphlogistic system, it was a reasonable conjecture that this disappointing obstinacy of some of the symptoms might depend upon a lingering but passive congestion of the pulmonary mucous membrane. And the nature of the *juvantia* confirmed the truth of this conjecture. Tonics and stimulants, so far from aggravating the pectoral symptoms, speedily abated or removed them.

You cannot fail, I think, to perceive the important bearing of these distinctions between active and passive congestion upon our notions of disease and our choice of remedies. These distinctions are not to be discovered by the knife of the anatomist. You must take care not to confound a knowledge of pathology, in the proper sense of that word, with a knowledge of morbid anatomy. Pathology comprehends not only the visible changes of structure which accompany disease, and are disclosed by death, but the processes by which those changes are effected in the living body, and the laws which govern those processes.

There is one important law ascertained in respect to both active and passive congestion—viz. that it is apt to *recur;* that those parts are most liable to suffer it, or inflammation, which implies it, that have suffered it before. We may often turn our knowledge of this general fact to good account, in what is termed the *prophylaxis* of disease—in devising means for warding off disorders.

I have stated that *active* and *passive* congestion sometimes occur in succession, the latter being a sequela of the former. So, also, it may be said of *passive* and of *mechanical* congestion, that they often exist *together.* If the capillaries of a part or organ be much enfeebled, the mechanical effect of the gravity of the blood may suffice to bring them into a state of congestion. It is thus that Andral explains the occurrence of a gorged condition of the posterior portions of the lungs (evinced by symptoms during life, as well as by inspection of those parts after death), in persons who, having laboured under no previous pulmonary affection, have been confined to a supine position by long-continued disease or debility. This state of the capillaries is called by Lerminier the "engorgement of position;" and by Laennec, "the pneumonia of the dying." It neither proceeds from irritation, nor has it the essential characters of inflammation; although it is apt to be considered an evidence of inflammation by the mere morbid anatomist.

Again, as active congestion, when continued or intense, is antecedent and conducive to inflammation; so is mechanical congestion, when it reaches a certain point, the prolific source of hæmorrhage, and the almost constant precursor and immediate cause of a large class of dropsical effusions.

I spoke a little while ago of general plethora, as a state in which the whole mass of blood circulating in the body is excessive in quantity, and rich in quality—full of fibrin and of colouring matter, thick with globules. But the blood, as a mass, may be in excessive quantity, yet poor in its materials, serous, deficient in globules, and fibrin, and colour; and in this condition of the blood also, as we shall hereafter see, dropsies are apt to arise.

We have now, therefore, laid the foundation for the better understanding of those three great classes of disease—*Inflammations, Hæmorrhages,* and *Dropsies.*

There is no region or organ of the body exempt from these diseased conditions and their consequences; and of each of them some general account must be given, before we come to consider the special diseases incident to the several parts and organs.

But previously to entering upon this general account of inflammation, of hæmorrhage, and of dropsy, we have still some other preliminary matters of importance to discuss. The causes and modes of death. The causes of disease. A sketch of the nature, classification, and import of symptoms.

Our enquiries hitherto have related to the manner in which the physical conditions of the various parts of the body are capable of being altered, and their functions disturbed or suspended, in disease. But how it happens that some of these alterations of structure, or interruptions of function, are incompatible with the further continuance of life, and put a stop to the working of the whole machine, is an enquiry of no less interest, though of a somewhat different kind.

EXPERIMENTS

ON THE

MOTIONS AND SOUNDS OF THE HEART.

BY THE LONDON COMMITTEES OF THE BRITISH ASSOCIATION FOR 1838-39, AND 1839-40.

[*For the Medical Gazette.*]

EXPERIMENTS FOR 1839-40.

In consequence of having been appointed to conduct the experiments on the motions and sounds of the heart for the current year, without being associated with any colleagues, I thought it desirable to avail myself of the assistance of such of my friends, including the other members of last year's committee, as could attend, and I accordingly requested the co-operation of a considerable number of gentlemen known to the public. Of those several were enabled to attend on numerous occasions, and one of them, Dr. Boyd, resident physician of the St. Marylebone Infirmary, on every occasion, so that every observation and experiment has been witnessed by one, or in most instances several, of the following gentlemen, to several of whom I am indebted for very important assistance:—

Professor C. J. B. Williams; George Gulliver, Esq., F.R.S.; John George Perry, Esq.; Dr. G. Hamilton Roe; Dr. George Burrows; Charles Cochrane, Esq.; Dr. Rutherford; Francis Kiernan, Esq., F.R.S.; J. Siddell, Esq.; T. K. Pritchard, Esq.; Francis Samwell, Esq.; Dr. Edwin Harrison; R. A. Stafford, Esq.; Benjamin Phillips, Esq., F.R.S.; Dr. Robert Boyd; and other gentlemen, private friends of the Reporter, and the last four named gentlemen his colleagues in the staff of the St. Marylebone Infirmary.

The experiments were performed in a convenient locality immediately adjoining the St. Marylebone Infirmary, and principally on donkey colts of a few months old. In the latter part of the series other animals, and especially dogs, were used, partly for economy and in order that the limited pecuniary resources at my command might not be prematurely exhausted; and partly because certain experiments contemplated were expected to prove more easily and decisively practicable on the larger heart of the ass, than on any smaller, such as that of the dog; and that in any event it was desirable to extend the range of observation as far as practicable over the animal scale.

The mode of preparation was in all cases nearly the same. In almost every case sensibility was withdrawn as completely as was practicable, by one method or other. In donkeys, I availed myself of the stupefying property of the woorara poison, for a packet of which I had been indebted since 1838 to Sir B. C. Brodie. The woorara was brought into operation by injecting a couple of grains of it, partly dissolved, partly suspended in water, into the external jugular vein, as practised by Mr. Mayo in an experiment of Dr. Hope's, and the injection was usually followed in a very few minutes, by complete insensibility. In smaller animals prussic acid was used in several instances, and in a few the subject was stunned by a blow on the head. Artificial breathing was used in every warm-blooded subject, by means of a bellows and long flexible tube kept loose in the trachea; the chest was opened, nearly as directed by Galen (de admin. anat.), and as practised by former committees, and 5 or 6 ribs, at least, were separated from the sternum, and broken near the articulation, and bent back over the vertebræ. In every case, whether during the preparation or subsequent observation, all convenient means were used, as advised by Galen, to prevent or lessen hæmorrhage, in order to avoid, as much as possible, the anomalous modes of action attending extreme vascular depletion, and to prolong the opportunities of observation and experiment.

The observations about to be detailed consist partly of experiments in continuation of the enquiries of former committees, and partly of experiments conceived and performed with a view to decide several points in dispute amongst physiologists of authority, which were not investigated by those committees, and which seemed to me yet unsettled, and at the same time important enough to call for direct experimental investigation. The following are the principal of those undecided questions.

1. With respect to the rhythm of the motions of the auricles and ventricles, several living distinguished physiological writers appear to hold, that those cavities act in strict alternation with each other, and not continuously or in immediate succession, the auricles being first in systole and diastole, and the ventricular actions being last before the Rest, as described by Steno, Harvey, Lancisi, Haller, Senac, &c.; and by Hope, Williams, Carlile, Pennock, and Moore, and other distinguished living experimentalists.

2. With respect to the share in the circulation due to the auricular systole, it has been declared to be active, and of much importance, by Harvey, Senac, and others; while several living writers of great weight, adhering apparently to the views of Galen, Vesalius, &c., seem disposed to refuse to the auricles any very influential or positively important share in the cardiac operations; for examples I may cite Dr. Elliotson, Prof. Bouillaud, Dr. Hope, Sir B. C. Brodie, &c.

3. With respect to the shape and dimensions of the ventricles in systole, it was held by Galen, Vesalius, Harvey, &c., that the heart is shortened in diastole, and lengthened in systole; but the observations of Steno, Lower, Lancisi, Haller, and others, gave currency to opposite views. Of late, however, the ancient opinion has been revived; for example by Professor Burdach and Professor Bouillaud, as I understand their observations, and by Drs. Pennock and Moore, the latest experimentalists on the subject that I know of, except my friends and myself.

4. With respect to the præcordial impulse, the great majority of physiologists, adhering unqualifiedly to the ancient opinion, advocated by Hippocrates and Galen amongst the Greeks, and by Vesalius, Harvey, Lancisi, Senac, Haller, Hunter, &c., ascribe the cardiac pulsation to a blow or stroke (in the popular meaning of those words) given by the heart's apex in systole to the ribs; and refer the apparent inaction in the heart, between its pulsations, to the retreat of the organ during its diastole inwards, and away from the walls of the chest. But in opposition to this view may be cited the experiments of several recent observers, and the arguments of Mr. Carlile, of Dr. Hope (in his last edition), of Mr. Bryan, of Dr. Billing, &c. &c.

5. With respect to the diastole of the heart, it was held by Galen and Vesalius to include a strong force of *suction*, by which principally the venous current was forwarded and the auricles were emptied; and this power of inhalation or suction has been adopted by numerous living authorities; *e. g.* Professor Bouillaud, Dr. Hope, and Dr. Copland; and has even been extended to the auricular diastole, *e. g.* by Professor Alison and Dr. Elliotson. The exertion,

however, of any such force has been distinctly denied to the diastolic state by Harvey, Lower, Senac, &c.; and recently by Dr. Billing and Dr. Arnott, as physical absurdities, and the opinion appears, Dr. Joy remarks, to rest on no satisfactory experimental evidence whatsoever.

6. In addition to active pulsations observed in certain animals in the veins, (as in hares, rabbits, dogs, fowls, frogs, &c.) there have been noted by several experimentalists, of whom it is sufficient to name the great Haller, certain passive pulsations, viz., an abrupt diastole of the vein attending the first part of the heart's systole, or the auricular contraction, and an abrupt systole of the vein attending the first part of the heart's diastole, or the dilatation of the auricle; but the connexion between this venous regurgitation and the auricular systole has been doubted by several apparently, and even denied by Dr. Elliotson.

7. Reverting to the auricular function, the systole of the auricles has usually been regarded as unattended by any intrinsic sound. Dr. Hope denies that any such sound occurs, and on physical grounds seems to affirm that it is not possible; and Dr. Joy calls the auricular systole a "silent" act. (Library of Practical Medicine.) Six months probably, or more, however, before the London Commissioner for 1840 had even begun his experiments, Drs. Pennock and Moore had, unknown to him and his friends, detected, as they conceived, an auricular systolic sound in a series of very interesting experiments, of which an account is published in the American Journal of Medical Science, No. 50, Feb. 1840.

8. The following, often agitated, and still moot points, have appeared to the reporter in like manner to stand in need of further examination. *e.g.* 1, the sizes of the cavities, &c., with respect to each other; 2, the production of sound by certain muscles while vigorously contracting; 3, the rhythm of the cardiac and arterial pulse; &c. &c. Finding on all the preceding points considerable difference of opinion, and perceiving that, in many instances, the decisions of highly distinguished and leading physiological writers were at variance with what be considered to be the best hitherto recorded experiments and observations, the Reporter found forced on his mind the conviction that on all or most of those points further data were wanting, and experiments less ambiguous, and more pointed and conclusive. Under such impressions the Reporter felt himself at liberty, if not positively called on, to advert to the various questions above alluded to, which had not been handled by former committees, provided that by any unlooked-for good fortune, if not through some new and happier experimental combinations, he should succeed in eliciting pertinent and decisive facts. Acting on such views, he has put to the test of experiment, to a greater or less extent, several of those questions, with results now to be stated.

It may be proper to mention that the instrument used in auscultation was exclusively the flexible ear tube; the wooden stethoscope, inconvenient in most cases, being found quite unsuited for such experiments.

Obs. I.—June 11th. *Subject*—A donkey about ten weeks old, and sound in all respects. *Phenomena* — Various spontaneous irregularities in the cardiac action and sounds; jerking upwards, &c. of periphery of internal valves in systole; appearances of auricles in action; effect of valvular obstruction on first sound.

Heart, when exposed, acting strongly and quickly; second sound indistinct, and loud murmur with first sound.

Section 1.—On placing the finger on the outer periphery of the mitral valves, an upward jerk and thrilling motion sensible, similar to that observed over the arterial valves.

Section 2.—At the moment of auricular systole there was noted a dimpling of the appendix, and an abrupt contraction in all its dimensions, and a sinking, as it were, downwards and inwards, followed by a gradual return to the state of prominence and distension that characterize the auricular diastole. Several times was observed a slight and partial active contraction of the auricle, followed by relaxation in the intervals of full and complete auricular systole and diastole, as if from transient spasmodic action.

Section 3. — The second cardiac sound observed at intervals to be for many minutes together wholly wanting, without obvious cause, no operation upon the mitral or other valves having been hitherto attempted action.

Section 4.—The left auricle was inverted successively by the finger, and by a probe, so as to impede the action of the mitral valves. The finger was sensible, when placed in the mitral orifice, of an abrupt though gentle concussion in the systole of the ventricle, and (it seemed to me) as if it were pushed by a cord or membrane stretched obliquely across the passage, and brought suddenly to a state of tension; and, at the same time, the sensation of jerking upwards was much less distinct when the finger was placed over the valve externally. The probe, also, when held loosely in the orifice (enveloped like the finger in the inverted appendix of the auricle) was felt and seen to be pushed back in each systole between the fingers.

Section 5.—At the moment of introducing

the inverted appendix into the internal opening, the sharp well-defined beginning of the first or systolic sound was wanting or obscure; and that sound seemed to several observers less abrupt and more gradual than normal in its development.

Obs. II.—13th. *Subject*—A stout ass of two to three weeks old. *Phenomena*—Abnormal murmurs without structural defect. Motions of the ventricle in systole, as apparent to the eye and hand. Same of the auricles. Rhythm of the motions of auricles and ventricles. Auricular hæmorrhage not suspended in diastole, and augmented in systole of auricle.

Section 1.—Heart acting normally and vigorously before the injection of woorara. Immediately after the operation was completed a murmur was observed with the second sound, or diastolic sound with a slow cardiac action, the first or systolic sound being normal.

Section 2.—In systole motion first indistinctly observed at the fundus, especially on the right ventricle, where any phenomena about the arterial orifice are most easily observed in an animal lying on the right side; apex almost simultaneously moved with fundus. These systolic motions in the ventricles were preceded by a dimpling and shrinking inwards and downwards of the auricular appendixes, but by a very minute interval, so that the auricular motion seemed, as it were, but the first portion of a more extensive movement affecting the whole heart.

Section 3.—Before opening the pericardium, needles were passed horizontally through that organ without wounding the heart, and so that they lay exposed to the eye in their whole length, except the minute portion actually penetrating the pericardium, and over the following points, viz. over the auricle, over the periphery of the mitral orifice, and over the apex; and observation was made through a roll of paper employed to limit the field of vision, and a succession of motions was distinctly noted; first about the fundus and insertions of the great arteries, and most strikingly over the appendices auricularum, and thence propagated, as it were, towards the free extremity of the heart, being perceived in the body of the ventricles next after the fundus, and at the apex last, as if an impulse in a compressed fluid, or a wave, commencing about the insertion of the arteries, had been propagated along the heart from fundus to apex.

Section 4.—After opening the pericardium, small triangular bits of white card were applied so as to adhere to the left appendix, fundus of left ventricle, middle of same cavity, and close to the apex; and observation was made, as in last experiment, through rolled paper, and with like results.

Section 5.—And this seeming propagation of motion was perceived next in another way—viz. by pressing gently on the fundus and body of the ventricle, and on the apex, by which was elicited a sensation, or series of sensations, as of a progressive movement of an undulatory character, directed from fundus to apex, and resembling, to a considerable extent, that given by a dropsical abdomen, or a hydrocele, &c. when appropriately percussed.

Section 6.—During a very vigorous action of the auricles, and at a somewhat advanced period of the observation, the shrinking and dimpling in its centre of the appendix in auricular systole was likened by several observers to an effect either of suction, or of some traction exerted on the appendix from some point about the auriventricular opening, more especially because it seemed often separated in time from the ventricular tension, roundness, and impulse (or systole) by a scarcely perceptible interval.

Section 7.—Towards the end of the observation, and during a tolerably regular and vigorous action of the heart, the tip of the left auricle was snipt off, after which the contractions of the appendix became indistinct, those of the ventricle being at first little affected. On the instant of cutting off the appendix, a profuse flow of blood occurred, in a stream slightly increased by a jet during systole of the auricle, and continued without any jet during diastole *.

Obs. III.—22d. *Subject*—A donkey about six months old, in good health. *Phenomena*—Results of application of pressure in various ways to the ventricles. Rhythm and manner of motions of fundus and apex in systole and diastole. Motions in the arteries and over the valvular orifices. Action of sinuses in systole of auricles. Shortening of heart in systole. Effects of wounding an auricle, &c. &c.

Section 1.—Callipers were applied to the ventricles, as if to take the diameter of the heart. The legs of the callipers before use had been fastened together by an elastic cord of considerable resisting power. In whichever direction the instrument so prepared was made to embrace the ventricles, whether exactly transversely or obliquely, the uniform result was, that the legs of the instrument were separated with force, and receded from each other in each systole, and approached each other in each diastole, with depression of the part of the parietes they pressed on, which depression wholly disappeared in the systole, giving place to an opposite state of the parts, or to a state of convexity and even of protrusion in the central parts.

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* The heart ceased to beat after about three-quarters of an hour of observation, owing to the inflating tube becoming obstructed by a clot of blood which escaped timely detection; it was quite healthy; the ventricles appeared not to differ in size.

Section 2.—The finger and thumb were then applied to opposite sides of the ventricles, and were felt to be abruptly pushed outwards in systole, and to approach each other in diastole, if acted on even slightly by the flexor muscles, and with marked depression of the parietes in diastole, during which no sense of active resistance was experienced.

Section 3.—A wooden stethoscope was then placed on the ventricles, and kept erect by means of a roll of paper large enough to give the instrument full freedom of motion, and the uniform result was, that, wheresoever placed on the ventricles, the stethescope was heaved up with a jerk at each systole, (to the height of half an inch near the fundus), and subsided at once in diastole, causing in the parietes a deep depression, which was wholly removed by the systole, and succeeded by an opposite shape of the surface.

Section 4.—To the eye and hand the fundus appeared to become round, hard, and elevated and to give impulse somewhat sooner than the apex, as if the systole was developed earlier about the fundus than at the free extremity of the heart.

Section 5.—To the fingers, during the systole of the ventricles, a feeling was communicated, as of an undulation in a compressed fluid, very distinct, and directed from fundus to apex, and resembling sensations familiar to clinical physicians in ascites, hydrocele, &c. when properly percussed.

Section 6.—On touching the arteries close to the heart, a feeling as of efflux and reflux was very distinct, especially in the aorta; the former coinciding with the systole of the ventricles; the latter with the diastole. At the same moment with the outward current in the arteries, or during the ventricular systole, a peculiar jerking upwards of the periphery of the auriventricular orifices, and a similar eccentric movement was observed over the arterial openings during the reflux current or undulation in the vessels, or during ventricular diastole.

Section 7.—The sinuses of the auricles were found by the touch to contract vigorously, before the ventricles considerably, and even before the shrinking, &c., or systole of the appendices.

Section 8.—Small triangular pieces of white card were made to adhere to the fundus and apex cordis respectively, and observation was made through a roll of paper sufficiently large to take in at a convenient distance both extremities of the organ, and held so that each white object rested on a distinct limb of the tube's mouth, and every change of distance between the points dotted white was readily detectible; and the uniform result was, that the apex approached the base in systole, and receded again in diastole, and the mean range of oscillation seemed about one-third of an inch.

Section 9.—While the heart still acted, but with much diminished force, a cut was made in the right auricle, and a copious flow of blood obtained, having slight jets in the auricular systole, and immediately before the ventricular hardening, elevation, &c. but being continuous during diastole.

Section 10.—The ventricles appeared not to differ in size on careful examination post-mortem cordis.

[To be continued.]

ON PERICARDITIS.

By James Douglas, A.M.

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[For the London Medical Gazette.]

In the following essay I propose, 1st, briefly to sketch the history of acute pericarditis; 2ndly, to examine its pathology; 3dly, to inquire into its diagnosis; 4thly, to speak of its treatment; 5thly, to illustrate the preceding divisions by some cases, several of which have occurred under my own observation; and lastly, to notice the consequences which result from it when chronic, or not immediately fatal.

1. Pericarditis is the inflammation of the serous membrane which lines the fibrous sac of the pericardium, and covers the heart and origins of the great vessels. It may be either acute or chronic. Such is the definition given by Laennec.

Pericarditis comes on, like other inflammatory attacks, generally with a feverish paroxysm, coldness and shivering, followed by heat, and afterwards by a moist state of the skin, which ordinarily persists throughout the progress of the case. Sometimes the pulse is frequent, full, strong, and regular, accompanied by heat and moisture of the skin; sometimes, on the other hand, it is small, unequal, irregular, and very quick, while the skin is hot and dry. Sometimes, in connection with this latter set of symptoms, the extremities become cold, and are covered with a cold sweat, as in cases of fainting.

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There exists sometimes a dyspnœa, or insufferable feeling of oppression; the patient cannot lie still, but is in a constant state of jactitation, as if unable to get breath; the face is pale, the features are contracted, and wear a most anxious expression; sometimes there are twitchings or spasms of the muscles of the face, occasionally putting on the appearance which has been called the sardonic grin. When the dyspnœa is carried to the last degree, the movements exhibit all the marks of forced respiration, the nostrils being dilated, the inspirations short, frequent, and constrained, as in pleurisy; sometimes delirium, sometimes insomnolence, sometimes convulsions, more or less general, are superadded. When the disease continues for some days before terminating in death, the face becomes pale and livid, and the limbs become anasarcous, as we see in most cases of obstructed circulation, from whatever cause.

Pain is not a constant attendant on pericarditis. When it does exist, it generally comes in sharp darting paroxysms, striking through the region of the heart to the back; but very often the only uneasiness complained of is a sense of weight at the heart, and sometimes, particularly in cases of rheumatism, the pericarditis is altogether latent.

Death from pericarditis takes place either from syncope, brought on by the obstacle to the heart's action, produced by the liquid effusion, or adhesions, or it is caused by the wearing out or exhaustion of nervous energy, met with in all cases of long-continued acute inflammation.

If resolution take place, a gradual amelioration of the symptoms occurs; but as the cure must almost necessarily be by adhesion of the inflamed surfaces, a degree of impediment to the heart's action generally remains, which is very apt, in the long run, to give rise to hypertrophy.

The causes of pericarditis are, exposure to cold, direct violence, such as fracture of the sternum or ribs of the left side, and what is still more common, the extension or metastasis of rheumatic inflammation. The similarity of structure in the joints and pericardium is the cause of this extension or metastasis. In both cases there is a fibrous membrane, which may or may not be inflamed; and in both cases there is a secreting sac, inflamed in all cases of pericarditis, and in all cases of acute rheumatism. The synovial membranes are well known to be very similar in structure to the serous ones, and sympathize strongly with them; as, for instance, we have sometimes synovitis following upon peritonitis, or accompanying pleuritis, and both caused frequently by inflammation of the lining membrane of the veins, which is itself a serous membrane. Bouillaud considers that one half of the subjects of acute rheumatism have pericarditis. When the pericarditis comes on, and the rheumatism continues, we would say it is certainly an extension of the disease; and when the rheumatism ceases as the pericarditis commences, many call it a metastasis. But is there a real metastasis? Does the inflammation leave the joint *to* attack the pericardium? or does it not leave the joint *because* it *has* attacked the pericardium? This is still a disputed question.

Pericarditis may follow traumatic inflammation of a joint also, as will be shewn by a case in the sequel. It has also been known to follow scarlet fever, and the suppression of cutaneous eruptions. According to the statement of Bouillaud, persons between the ages of 10 and 30 are the most liable to its attacks.

2. Acute inflammation of the pericardium, like that of all similar membranes, is characterised by redness of its surface, by effusion of coagulable lymph, and by the pouring out of a serous, sero-sanguineous, or sero-purulent fluid.

The redness is almost always slight in the acute disease, and seldom pervades the whole of the inflamed portion. It is not formed by distinct vascular ramifications, but is mostly in dots, as is seen also in acute inflammations of the other serous, and in synovial membranes, when inspected in the first stage. Scarcely ever does it happen that we see the pericardium in this stage of inflammation, for the effusion of lymph comes on very early, and then the vascular mottling is discoverable only by peeling off the false membranes, or where we see it in the interstices between them. The pericardium is rarely if ever thickened; what has been described as thickening has generally been a deposit of lymph on its surface, which has become organised, and in a manner incorporated with it.

Very soon after the increased vascularity which constitutes inflammation has occurred, the overcharged vessels pour out their pale straw-coloured fibrine, which speedily becomes coagulated on the surface of the membrane, obscuring the redness, and taking on various irregular forms. Generally fibrine and serum are secreted together, and the former coagulates while the latter remains fluid. The coagulum of fibrine varies much in thickness, but from the twelfth to the fourth of an inch may be considered as the medium. It does not in general present a smooth or even surface, as the false membrane in pleurisy does, but is rough, and has a multitude of irregular prominences. These are sometimes like the surface of a honeycomb, or like the second stomach of a calf; sometimes, though rarely, in detached lumps; sometimes like a pustular eruption, whence it has been absurdly stated that small-pox has been seen in the pericardium; occasionally it hangs in shreds like tow, and in other cases is marked with undulating lines, like the sand on the sea shore. Generally it has the appearance produced by separating two slabs covered with lard, presenting numerous prominences and depressions, caused, of course, by the friction of the surfaces covered with the soft exudation. When the lymph becomes old, it occasionally puts on a darker colour, and becomes even of a brownish red. In such cases, where not adherent, there is usually secreted a bloody serum.

If no fluid be effused, or that which has been effused becomes absorbed, then the parietal and cardiac layers come into contact, and adhere. By and by, the medium of adhesion has vessels shooting into it, and becomes organised; it now puts on the appearance of cellular membrane, its thickness in a great measure disappears, and if an opportunity of inspection occur some years after, the layers are found completely blended into one.

In most cases, an effusion of serum accompanies that of coagulable lymph. The surfaces are thus prevented from adhering, and become separated, and, if inspected in this stage, will be found smooth. A preparation on the table exhibits this; it was taken from a child. The pericardium contained a large quantity of muddy serum, by which the surfaces were widely separated; they are seen covered with lymph, and have, evidently, never been adherent. The drawing which I took of this case, when recent, exhibits the lymph in patches, with the vascularity of the membrane appearing in the intervals between them.

The serum is sometimes transparent, of a faint greenish yellow, or fawn colour; but more generally it is opaque and milky, or containing shreds or flakes of imperfectly concrete lymph floating in it. Dr. Hope says this mixture of lymph is rarely seen; but in the cases which have occurred to me, it has been almost always present. Its quantity varies from a couple of ounces to a pint, or even more. Sometimes the effusion is hæmorrhagic, such as is occasionally seen in pleuritis, and then, of course, its colour is a more or less deep red.

The quantity of the effusion may become so great as materially to impede the action of the heart, and produce fatal syncope; but generally it, after a time, becomes absorbed, and then the false membranes adhere, and the cavity of the pericardium becomes obliterated. Sometimes the false membranes become organised, and a continual balanced process of effusion and absorption goes on, the fluid gradually changing its character, so as to become sero-purulent, and the patient dies of irritation. It is said that true pus is scarcely ever found in the pericardium, probably because the intense irritation carries off the patient before the suppurative process becomes fairly established.

Sometimes we find that lymph has been effused from many points of the serous surfaces, producing adhesions, and that while these are still soft, serum is poured out from those parts of the surfaces which are non-adherent, and by its accumulation the adhesions become elongated.

In some cases the inflammation of the investing membrane extends to the muscular substance of the heart, producing what is properly called carditis. Of this affection it is not at present my intention to speak; suffice it to say, that in such cases the colour of the muscular substance will be much deepened for a part of its thickness exteriorly, if the case be recent; and will be paler than natural, if so chronic that lymph have been effused, or it have become firmer than in the healthy state. More frequently the lining membrane of the heart also becomes inflamed, in virtue of that sympathy by which all the serous membranes are so linked together. The membrane assumes a red instead of a yellow colour, and sometimes lymph is effused, putting on the form of vegetations, or, at least, rendering the membrane opaque, which is naturally transparent. I had several specimens of this opacity of the endocardium, but the appearance is lost by the opacity given to the healthy membrane by the spirits.

It does not appear that the pericardium is subject to either ulceration or gangrene.

3. The diagnosis of pericarditis is the point where practitioners, till of late years, were most at fault. When discovered, it is as amenable to treatment as other membranous inflammations; but when latent, it was of course allowed to destroy the patient, without ever being put in check. The general symptoms which have been mentioned above, in the history of the disease, are plainly those of all thoracic inflammations; and though from some of them, in some cases, pericarditis might be guessed at, none of them could be depended on with certainty. M. Collin, in 1823, in his Manual on the Exploration of the Chest, pointed out the "leather creak," as he called it, as a diagnostic mark of pericarditis. Laennec had thought this sign valueless, for in his treatise it is not even mentioned. For ten years this sign lay dormant, if I may so speak, and if we except a notice in Broussais's Pathological Commentaries, which attracted no notice, it was only in 1833 that the attention of the profession was called to it, by Dr. Stokes, of Dublin, who has the merit of almost re-discovering it, at least of pointing out its almost universal application. I will now give a short abstract of the remarks which he has appended to his cases, in the Dublin Journal for September, 1833.

The direct diagnosis of pericarditis is formed on the observation of certain phenomena produced by the morbid condition of the serous surface of the pericardium, which are twofold; we have phenomena perceptible by the hand, and phenomena perceptible by the ear.

In the natural state of serous membranes, the gliding of one surface over another meets with no opposition, and is not accompanied by any sound; but when, from the effusion of lymph, these surfaces become roughened, we have sounds produced by the friction, and vibrations communicated to the surface, often perceptible to the hand. The motion of ascent and descent of the lung is inaudible in the healthy smooth state of the pleura, but a friction-sound is generated in dry pleurisy; and in the same manner the effusion of lymph on the internal surface of the pericardium is rendered obvious to the senses both of touch and hearing.

The friction-sound is *always double*, accompanying both the systole and diastole of the ventricles; but varies considerably in its character. In some cases there is a rasping-sound, like that heard in the worst cases of ossification of the valves; in some it has the creaking of new leather; in others it is soft, and similar to the bellows-murmur, but in all it is *double*, and *quite superficial*. The rubbing sound varies in character on different days, and is much modified by the effects of treatment. After a free application of leeches, the sounds are often speedily and singularly changed, passing from a very loud rasping to a soft bellows-murmur, with complete disappearance of the feeling of friction. Further, it is an important element in the stethoscopic diagnosis, that the friction-sound is audible only over the heart, and is lost on moving the instrument one or two inches away from it. The extent over which the sound is heard varies according to the extent of the pericardium which is inflamed; sometimes it is heard only over a small portion of the heart's surface; more commonly over the whole; and sometimes, on different days, it may be distinctly traced extending.

If adhesions of the inflamed surfaces takes place, of course the sound disappears, when the surfaces no longer move on one another. But the friction-sounds may disappear from another cause, viz. the effusion of fluid separating the rough surfaces. In this case, the region of the heart will be more dull than natural on percussion; and if the treatment have the effect of causing absorption of the fluid, then the friction-sound will re-appear on the rough surfaces coming again into concontact. When, however, the effusion is moderate, the friction-sound does not disappear over the whole heart, but only towards the apex, the rough surfaces remaining in contact towards the base of the heart.

After the surfaces have completely adhered, and the disease has arrived at the only cure of which it is susceptible, a bellows-murmur often continues, quite different from the previous friction-sound. Sometimes this depends on inflammation of the membrane lining the heart, or endocarditis; but more generally, I believe, on the obstruction to the heart's freedom of motion produced by the adhesions. This obstruction seems to excite greater efforts, which generally terminate in hypertrophy.

I will now finish what I have to say of the diagnosis, by transcribing Dr. Stokes's conclusions, or the general results of his researches.

"1. That in cases of pericarditis with effusion of lymph, the rubbing of the two roughened surfaces causes sounds perceptible to the ear, and communicable to the hand, by which the disease may be readily recognised, even when all other symptoms are absent.

2. That the more rough the serous membrane is, the more distinct will these signs will be.

3. That those sounds accompany the two sounds of the heart, in almost all cases.

4. That they are audible, generally, only over the region of the heart.

5. That they present themselves with various modifications of character, but often resemble the sounds of extreme valvular disease.

6. That they are most distinct when the region of the heart continues with its natural sound on percussion; but that the existence of fluid does not necessarily imply their complete subsidence.

7. That they may re-appear after the absorption of fluids from the bag of the pericardium, or from the new supervention of inflammation.

8. That the sounds may continue when the sense of rubbing is no longer perceptible by the hand.

9. That they are singularly and rapidly modified by direct antiphlogistic treatment.

10. That by observing the progress and mutations of these signs, we can trace the progress of organization, or of obliteration of the pericardiac cavity, judge of the effects of treatment, and accurately ascertain the exact state of the pericardium.

11. That hence, auscultation is of *direct* use in pericarditis; and that the diagnosis no longer rests on *negative* signs."

[To be continued.]

CASES AND OBSERVATIONS

ILLUSTRATIVE OF THE

MERCURIAL TREATMENT OF SOME FORMS OF INCIPIENT PHTHISIS PULMONALIS.

By William Munk, M.D.,
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[*For the Medical Gazette.*]

The idea of employing mercury as a curative agent in the early stage of some forms of phthisis pulmonalis, occurred, we are informed, about the same time, and without any mutual communication, to three of the most distinguished physicians of the Irish capital. These were, Sir Henry Marsh, Dr. Graves, and Dr. William Stokes. The two latter of these gentlemen have laid before the public some of their earlier experience on this interesting subject. The first communication which appeared was from Dr. Graves, and is contained in his published clinical lectures, whilst the experience of Dr. Stokes will be found detailed in his excellent treatise on the Diagnosis and Treatment of Diseases of the Chest. The results of this practice in the hands of Sir Henry Marsh are not, so far as we know, yet before the profession. Dr. Corrigan, more recently, in a very interesting lecture, has pointed out the class of cases, and the stage, in which this mode of treatment is admissible.

Before entering further on the subject, it may be well to give a sketch of the circumstances which have led to this mode of treatment, and, in so doing, I shall avail myself of the words of Dr. Graves, offering no apology for the length of the quotation, the interest attaching to the subject seeming to me a sufficient reason for so long an extract. After speaking of the effects of mercury in some inflammatory affections of the joints, and in some forms of inflammation of mucous membranes, the Queen's Professor goes on to say, "This puts me in mind of a plan I have adopted within the last year, in the treatment of certain diseases of the lung, and on which I shall make a few observations, as it has not been spoken of by those who treat of the cure of pulmonary affections. I must here in justice confess that the idea of this plan of treatment is not solely mine, but was founded on an analogy derived from the researches and experiments of Dr. O'Beirne, on scrofulous inflammation of the joints. An extensive experience and deep reflection first led Dr. O'Beirne to think that the acute stage of scrofulous inflammation of the hip and knee joints might be made amenable to active and energetic treatment; in other words, that inflammatory affections of the joints, which terminate in some of the worst and most fatal forms of disease, namely, morbus coxæ and white swelling, might be checked *in limine*, and before the stage of hopeless ulceration was established. He, therefore, proceeded boldly and at once to try whether the disease might not be arrested in the commencement by rapid mercurialization. Observe, gentlemen, the idea was completely new; it had never occurred to any other person, and was diametrically opposed to the theories of the day. The prevailing opinion on this subject was, that mercury was inadmissible, and could only produce mischief in persons of scrofulous diathesis. Every one said, do not give mercury in such a case, it exasperates scrofula; it even brings on scrofula in many instances where there had been no appearance of it previously. You can do no good with it, but may do infinite mischief. Dr. O'Beirne, however, knew the difference between the proper and improper exhibition of mercury—between mercurializing the patient at once and fully, and then stopping, and the pernicious custom of giving long and irregular courses of mercury. He tried the remedy, and succeeded, and the surgeons of Europe have justly appreciated the value and importance of this discovery. About two or three months before Dr. O'Beirne made his discovery public, I had translated for the Dublin Medical Journal a paper from a German author on the use of corrosive sublimate baths in the treatment of white swelling, and Dr. O'Beirne states that the publication of this paper gave him courage at the time in pursuing a plan of treatment so much at variance with the opinions of the day. I published this paper, however, at the time, merely as a curiosity; it was a novelty in practice, of which I had no experience, and could not offer any explanation. This was reserved for Dr. O'Beirne. He has shown in his memoir on the subject, that if you give mercury so as to affect the system rapidly, you will frequently succeed in curing the disease, particularly in the commencement. From this I was led by analogy to apply the same principle of treatment to incipient scrofulous inflammation of the lung, and I think I have often succeeded in checking at once this most formidable of human maladies*."

The results of this practice, as hitherto published, are as follow. Dr. Graves states in general terms that he could mention many cases which have been treated successfully on this plan, and then proceeds to particularize three in which its action was manifestly curative. It failed, however, in two cases in which he had confidently expected benefit. Dr. Stokes mentions six cases in which he made trial of the mercurial treatment. In two of these a permanent recovery ensued. In two, temporary, though well-marked relief, was experienced. In one instance it was useless, and in another the medicine manifestly disagreed. Dr. Corrigan narrates but one case, yet this is decidedly in favour of the treatment, for the patient speedily recovered. Exclusive, then, of the experience of Sir Henry Marsh, who is reported by Dr. Graves to have found this mode of treatment beneficial, there are for reference twelve cases. In six of these a cure resulted, in two considerable benefit, in three it was useless, and in one the medicine disagreed.

Small as is this experience when numerically considered, and insufficient as to the decision of a point so completely at variance with the doctrines of the schools, it nevertheless appears to us that the evidence above adduced, coming as it does from persons so well qualified to form an opinion on the subject, has attracted far less of attention than its intrinsic importance legitimately demands: out of twelve cases of a disease so uniformly fatal as phthisis, there have, under a new and peculiar mode of treatment, been six cures. This will probably to many persons be a startling assertion; and I have therefore, before making it, been careful to state distinctly from what sources the information has been derived.

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* London Medical Gazette, vol. xx. p. 339.

On investigating the pathological condition to which the observations of the authors above quoted refer, we shall find that conclusions as to its nature and seat must be based almost wholly on the general symptoms and physical signs; post-mortem examinations serving our purpose but little, inasmuch as few cases prove fatal at this period of its course. These circumstances combined make necessary a large amount of observations before any certain conclusions can be obtained; and they tend, in no inconsiderable degree, to render doubtful to many members of the profession the opinions maintained by those who have given attention to the subject, whilst they no less cause the treatment pursued, and the success which is stated to have resulted therefrom, to be regarded with some degree of suspicion. This is, perhaps, but an illustration of that salutary caution which, within certain limits, should mark our conduct in reference to new views and novel modes of practice hence derived, more especially when, as in cases like the present, many of the arguments are deduced from negative rather than from positive facts.

The form of disease now under consideration very commonly attacks individuals in tolerable or even apparently perfect health, although, if their previous state be minutely investigated, it will, I believe, in such instances, be found that there exist more or fewer indications of deterioration of habit, in the shape of scrofulous cachexia—whether that be of hereditary origin, or has been acquired by error in some of the non-naturals. Its commencement is, in the majority of instances, sudden and well marked; its immediate exciting cause clearly ascertainable, being in general owing to the application of some of the common causes of inflammation; or it originates, as do other local inflammatory affections, during the course of fever, of the exanthemata, influenza, &c. The phenomena attending it are those which point to a lesion of the bronchial mucous membrane, pulmonary parenchyma, or, as is most frequently the case, the two combined; that lesion being evidently inflammatory in its character, as evidenced by pyrexia, and by the existence of the physical signs and general symptoms of bronchitis and pneumonia.

The disease, in its most frequent form, commences after the manner of a common catarrh. The patient having been exposed to moisture, or a low temperature, often the two combined, experiences a sensation of chilliness, which may augment to actual rigors. These are attended by languor, and indisposition to bodily or mental exertion, pains about the back, and aching of the limbs; to which succeed heat of skin, increased frequency and strength of pulse, thirst, and a more or less unnatural appearance of the tongue. The respiratory organs evidence disorder; the voice becomes somewhat altered; irritation is perceived about the larynx, giving rise to frequent dry and irritative cough. As the case proceeds soreness is experienced beneath the sternum, a sense of tightness across the thorax; more frequent cough, which either then, or within a short period, is accompanied by expectoration, at first of a watery, saline, and irritating character, but which soon mellows down into a clear, tasteless, viscid fluid, scanty in quantity, and expelled with some difficulty. In other cases the expectoration presents characters different from those just mentioned; it is more abundant, brought up with ease, and, in lieu of being clear and tasteless, is opaque, sweetish, and pus-like. These symptoms individually or collectively may be more or less severe; they do not, in the majority of instances, arrive at such a height as to induce the individual to place himself at this period under medical care. The indisposition is looked upon as a common cold, perhaps more than ordinarily severe. Yet it is subjected at this time to domestic remedies alone.

Should the practitioner, however, have an opportunity of examining a case at this period, he will find modified bronchitic râles over more or fewer parts of the chest, existing perhaps only, or at any rate greatly preponderating, in the apex of one or both lungs. After continuing for an uncertain period these symptoms undergo modification; some may altogether disappear; but in general a diminution of severity is alone experienced. The patient from hence flatters himself that he is improving; but the speedy addition to the category of symptoms of no mean import, dispel the illusion, excite fears as to the indisposition, and cause him then to seek professional advice. There is emaciation and loss of strength; the phenomena of common pyrexia merge into or are changed for those of hectic, among the symptoms of which rapidity of pulse and morning perspirations will be found the most marked. There is severe and harassing cough, with or without a viscid purulent expectoration, considerable hurry of respiration, shooting pains about the shoulders, disturbed and sleepless nights. The stethoscopic signs at this period consist of a minute and clear mucous rhonchus, more properly, perhaps, designated by the term muco- or sub-crepitant, and existing only in the superior portions of the lung. In other cases there is heard at this part of the chest a modification of the normal respiratory sound, which, when once distinguished, can never afterwards be mistaken, but the description of which in words, as of most other sensations, is a task of difficulty. The respiratory murmur is here somewhat modified, scarcely if at all diminished in intensity, yet giving the sensation of being moister, as though the bronchial tubes were lubricated with more fluid than in their healthy state; not, however, as it would seem, in sufficient quantity to produce the subcrepitant or mucous rhonchi. In these instances we may occasionally, by very careful and prolonged examinations, detect at long intervals, especially on a deep inspiration, a solitary and minute mucous bubble. Here we generally find that expectoration is exceedingly slight, or altogether wanting; whilst in the cases presenting the subcrepitant or mucous rhonchi, expectoration does exist, although rarely to any great extent. Little or no information can be obtained from percussion during the earlier periods of the disease, the chest then sounding perfectly well. As the case, however, advances, more or less dulness is perceived; and when this occurs, the active auscultatory signs undergo a corresponding modification. At first there is an increase in duration and intensity of the expiratory sound, giving to the whole respiration a sensation of greater roughness: this increasing, passes onwards into well-marked bronchial respiration, coincident with which there is bronchophony and bronchial cough. It were useless to trace these cases further: tubercular matter has now been deposited in considerable quantity, the case is one of confirmed phthisis, and the period for the employment of mercury has passed.

Such will be found the commencement and course of many of the cases of phthisis which are amenable to mercury in their earlier stages. Sometimes, however, the disease takes its origin in a severe and universal bronchitis, which at once calls for medical interference and for active treatment. There is here great feverishness, considerable embarrassment of respiration, and intense bronchial rattles over the whole chest. General and local bloodletting, with tartar emetic, seem to be here clearly indicated; and although it be found in the sequel that these measures are not so well borne as the symptoms would have led us to expect, still from their employment the patient derives considerable relief. The activity of the disease is broken, the fever is diminished, the respiratory oppression relieved, and the bronchial râles lessened both in intensity and in extent. The stethoscope indicates, however, that the morbid action still lingers within the lung, and that the superior lobes are the parts now alone affected. The remedies which had proved effectual in the removal of inflammation from the other parts are powerless over these; and their continuance serves but to debilitate the patient, and to hasten on the disease to an incurable stage. The lesion here existing may, however, be removed, but its removal can be accomplished in no other way than by the employment of mercury, so as to produce its specific effects upon the constitution. If the mineral be not had recourse to, the ease goes on from bad to worse; percussion and auscultation evidence the deposition of tubercular matter within the lung, and incurable consumption is thus induced.

Another and not unfrequent mode in which this disease originates remains now to be noticed. Allusion is here made to those cases the commencement of which is distinctly traceable to some general disorder of the whole system, as, for instance, essential fever, the exanthemata, influenza, &c. In the course of all these there is a great liability to congestions, determinations of blood, and inflammation. The bronchial mucous membrane and pulmonary parenchyma become frequently affected in this manner, the supervention of such morbid state being, in some instances, proclaimed by symptoms so well marked, that the lesion from whence they originate cannot be overlooked. In far the greater number of instances, however, the local disease is to a greater or less degree latent, the marks of general disturbance being so numerous and severe as to cast into shade or obscure the more feeble manifestations of low morbid action in the lung. The former class of cases being at once recognised, are promptly met by appropriate treatment, the local disease is subdued, and the disastrous consequences to which it tends thus averted. In the latter instance, however, the local affection often goes unrecognised, and no measures are adopted for its removal; or, if it be discovered, its severity is frequently underrated, and means employed which prove inadequate to the end proposed. In either case the phenomena are similar to those before enumerated; they indicate a low inflammatory action of one or more tissues of the lung, existing only in the top of the organ, or, if more extensively spread, greatly preponderating in these parts. Should this condition continue, the patient presents a like succession of symptoms to those we have described above as occurring when phthisis supervenes upon catarrh, modified however, in some measure, by the nature and usual course of the disease in whose progress they have arisen. There is an analogous mitigation and modification of the local and general symptoms, together with the addition of other phenomena dependent on the disordered state of the lung, and the disturbances in other organs to which its sympathetic relations give rise. The patient experiences what appears to be a long, tedious, and unsatisfactory convalescence. After a time he retrogrades considerably, and the symptoms of pulmonary disease come prominently forward. The efforts of the practitioner to relieve the condition of general disorder are set at nought by the local disease, which proves an insurmountable weight to the resiliency of the constitution. Emaciation progresses, the symptoms of hectic appear, and after a time the physical signs testify the deposit of tubercle in the lung.

It may probably be urged by some that the term phthisis cannot with propriety attach to the lesion of the respiratory organs above described, inasmuch as the active and passive auscultatory signs differ widely from those commonly laid down by writers as indicative of this disease, and point only to low bronchitis or pneumonia. The justice of this objection we are forced to admit, if the term phthisis be employed in a limited sense, and as expressive only of those cases in which tuberculous matter has already been deposited within the lung. But regarding the subject in a practical point of view, we come to an opposite conclusion: for abundant experience testifies that the transition from the state above described to that of confirmed phthisis is gradual and progressive; that in point of fact the condition now under consideration is neither more or less than that which determines scrofulous deposition to the lung, whilst it is, at the same time, the very action by which this deposit is effected.

In the three cases above described, phthisis, from neglected though mild bronchitis—as the sequel of severe bronchial inflammation inefficiently treated, or as ensuing upon bronchial or parenchymatous inflammation occurring during the course of other and general disease—there is found only a sibilant, clear mucous, crepitant, or muco-crepitant rhonchus; these persist for a long period, and are, during the early stage, unaccompanied by other signs. The sonorous rhonchus is rarely heard; the mucous exists in a diminutive form, approximating in character to the crepitant; the expectoration but rarely undergoes the same rapid succession of changes observed in pure ordinary bronchitis, but remains clear, tenacious, spumous, observing more the habitudes of peripneumonic or of bronchopneumonic disease. This combination of symptoms points therefore more to the minute bronchial tubes as the seat of disease, than to either the larger tubes or the parenchyma. It presents much resemblance to that form of disease termed capillary bronchitis, but is attended by less expectoration than is usually found in this disease, when occurring in its more usual site, the lower portions of the lung.

Now if it be asked, says Dr. Stokes[*], what gives these signs of bronchitis their value as diagnostics of incipient tubercle, the answer is, that it is not by their mere characters (for these do not differ from ordinary bronchitis), but it is from their situation[†], localization, and combination with comparative dulness of sound, that they derive their value. The same phenomena scattered over, or even existing intensely throughout the lung, but being equable, and unaccompanied by dulness, would not only have no value in the diagnosis of phthisis, but would render the existence of tubercle improbable. Simple bronchitis is seldom circumscribed, while that of the consumptive is commonly so: the latter begins in the upper portion of the lung, remains obstinately fixed in the air tubes, gradually spreads downwards, and while in its first stages in the lower lobe is combined with tuberculous ulceration in the upper: it may be intense in the upper lobe while the lower is altogether free, or engage the whole of one lung while the other is scarcely affected. These are not the characters of ordinary bronchitis.

A new aspect has been given to the pathology of tubercular disease by the investigations of Sir James Clark[*], Dr. Carswell[†], and the late Dr. T. J. Todd[‡], who have proved that, for its production, a previous morbid condition of the system must exist: in other words, that a necessary element in the causation of scrofula is a certain cachexia or abnormal state of the fluids of the body. In what this consists has been most clearly shown by Dr. Carswell, whilst the circumstances leading thereto have no less satisfactorily been elucidated by Sir James Clark and Dr. Todd. From the united labours of these gentlemen have resulted the important pathological law, that *tuberculous matter exists as a morbid constituent of the blood, is eliminated from it by a process analogous to, if not identical with, secretion, and is thus deposited, in a visible form, in different organs or parts.*

The contamination of the blood exists in some cases for a long period, and proceeds to a great extent before the deposition of tubercle commences. It seems not improbable that in such instances the sanguineous fluid becomes so thoroughly saturated (if the phrase be allowable) that an attempt at relief is then commenced, and nature sets about the work by eliminating the morbid product in conjunction with the secretions. Dr. Carswell is of opinion that the surfaces of mucous and serous tissues are those upon which tubercular matter is chiefly deposited; that as regards relative frequency the former very far exceeds the latter; for here, he says, "as into the great emunctory of the system, it appears to be separated from the blood, and becomes visible to us under a variety of forms." Dr. Carswell is at issue with most pathologists as to its deposition in the molecular structure of organs. In no one instance has he witnessed it so situated. Our own observations tend to an opposite conclusion, although we doubt not that the most frequent sites of tubercle are those pointed out by Dr. Carswell. We believe, with most pathologists, that tubercular matter has no peculiar site; that it *may*, under certain circumstances, appear in any organ or part of the body, making its appearance there by a lesion of nutrition, whereby such matter is secreted in place of, or in union with, those molecules of the blood, which, appropriated to the organ itself, become an integral portion of its structure, and thus repair the losses it is ever undergoing.

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[*] Treatise on the Diagnosis and Treatment of Diseases of the Chest, p. 392.

[†] Louis, says Dr. Cowan, has *invariably* found that the sibilant, mucous, and submucous râles resulting from simple catarrh, originate in the *lower part of the chest*, while bronchitis complicated with pulmonary tubercles is always situated in the *upper lobes*. Simple bronchitis usually attacks *both* sides of the chest, while rhonchus from tubercles is *at first* almost constantly confined to the upper lobe of one side. Of the immense importance of this law there can only be one opinion, and, in many instances, attention to the seat of bronchitis would dissipate much doubt and anxiety, and early indicate the real nature of an affection which, without the knowledge of this fact, would frequently be confounded with simple catarrh, and thus frustrate the hopes both of the patient and practitioner.

[*] Treatise on Pulmonary Consumption, Lond. 1835.

[†] Art. Tubercle, Cyclop. of Practical Medicine, and Illustrations of the Elementary Forms of Disease. Fascic. Tubercle.

[‡] Art. Indigestion, Cyclop. of Practical Medicine, and in Sir James Clark's work on The Influence of Climate, and Change of Air, &c.

This deposition is frequently a silent process; it commences and proceeds to a certain point, unaccompanied by any known pathological state, or, if phenomena of disorder do occur, they are to be regarded as effects or coincidences rather than as causes. It will probably be found that this relation obtains only in those cases where scrofulous cachexia, and the contamination of the blood, which is its essence, has proceeded to a considerable degree, and where the local deposit is the result of the overcharged condition of the blood, rendering relief by the elimination of some portion of the morbid constituent indispensable.

In other, and, perhaps, the majority of instances, tubercle is deposited long ere the cachectic state has arrived at the degree above supposed. In these such an event is determined by irritation or inflammation, under the influence of which there is a larger afflux of blood to the part, and coincident with it an increase and modification of secretion. In lieu of the results of common inflammation, as occurring in a healthy subject, there is here deposited tubercle, or coagulable lymph variously modified, the modification consisting in the approximation of that product more or less closely in character to tubercle. The analogy which exists between these two morbid products, and the mode in which one may pass into or give origin to the other, has been clearly shewn by Dr. C. J. B. Williams. Its further consideration here would extend these remarks to an inconvenient length; I shall, therefore, content myself with referring those who may wish to enter fully on the subject to the third vol. of the Library of Medicine, p. 166, et seq.

[To be continued.]

REPORTS OF CASES,

By H. M. Hughes, M.D.

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[*For the Medical Gazette.*]

Bronchitis.—The number of persons so severely affected with this disease as to be unable to attend at the dispensary, and therefore visited by me at their own houses, during the year between March 16th, 1839, and 1840, was twenty-six, a number larger than that attached to any other complaint, with the exception of phthisis. The comparatively large number of those affections, which are primarily induced, or the progress of which is accelerated by cold and wet, as rheumatism, bronchitis, and phthisis, concurs with the small amount of the cases of fever in marking that year as one particularly free from those grave epidemic typhoid diseases which are usually common in the district to which these reports are confined, as well as in those adjoining it.

Of the twenty-six cases referred to, eight were examples of simple, acute, or subacute inflammation of the bronchial membrane, and in the remaining eighteen this inflammation existed, generally in the chronic form, in combination with emphysema of the lungs, and more or less dilatation of the right side of the heart, either temporary or permanent. Of the cases of simple bronchitis it is sufficient to observe that they were induced by common causes, and treated successfully on common principles; the chief or most important remedies employed for their cure being blisters, antimonials, and saline aperients. There appears to be no disease, with the exception of chronic rheumatism, which is so much affected by atmospheric changes, and which, after temporary relief, is so likely to be reproduced in all its former intensity by a cold and damp air, as chronic bronchitis accompanied with pulmonary emphysema. On this account it was that the disease was unusually troublesome and obstinate at the end of the last and commencement of the present year, when wet and cold weather continued for many successive weeks.

The ages of the patients varied from three to seventy years; their complexion, temperament, and occupations, also varied considerably. It is not, I think, generally known that young children are liable to, and not very unfrequently affected with emphysema of the lungs, and that from the cradle they are subject to many or most of the inconveniences that occasionally accompany it. Mothers sometimes assert that their children were *born* with a "shortness of breath," and generally add that they are themselves, or that the father, or some other near relative of the particular patient, has been long "troubled with asthma." That pulmonary emphysema may not be congenital, or even hereditary, I am not prepared to deny, but I am not aware of the existence of any pathological observations which can be considered conclusive evidence of the fact; and I am certain that almost all the cases that have fallen under my own notice have upon inquiry been traceable to a severe attack of hooping-cough, or bronchitis following measles. I must, at the same time, admit that I have seen a few instances of this disease, particularly in rickety subjects, in which after a considerable investigation I have not been able to ascertain the prior existence of any such complaint. The plan of treatment that I have found most beneficial in these cases, of whatever age, is the application of counter-irritants to the chest, and the use of hydragogue cathartics, and a combination of alkalies and expectorants. In children the ammonia liminent, with or without a little tincture of cantharides, according to the susceptibility of the patient, or the effect produced, applied to the chest night and morning, and a mixture containing Liq. Potass., Tr. Scillæ, Vin. Ipecac., and Syr. Papaver. taken three or four times a day, with an occasional aperient if requisite, I have almost always found effectual in removing the temporary complaint, if the weather has been favourable to such a result. In the adult, repeated blisters, the compound camboge pill, or jalap, as a purgative, and mixtures of the same kind as those administered to children, or others containing ammonia, decoction of senega, squills, and compound tincture of camphor, varied according to the condition of the individual patient, have often afforded very marked and speedy relief. Several also, for whom the inhalation of the smoke of stramonium has been prescribed, have been extremely energetic in announcing the benefit they have derived from its employment. It has generally been ordered to be smoked just before retiring to rest, and the stated effect has been a decrease of bronchial secretion, less cough, and a comparatively quiet and comfortable night. But till the weather has become mild and dry, all remedies that I have hitherto tried have been generally inefficient for the removal of even the temporary complaint. The pulmonary emphysema has of course remained, and as I have considered it to be the most important of the two complaints, I have placed the patients thus affected, who have resigned their dispensary letters as "cured," among those simply "relieved."

The list of twenty-six cases formerly published contained three dead, seven cured, twelve relieved, and four remaining under treatment. Of these last one has since died. The four cases in which death occurred were the following:—

1. A man, aged 26, by occupation a lamplighter, who from childhood had been subject to the inconveniences resulting from emphysema, frequently increased by severe attacks of bronchitis. While suffering from one of these attacks he imprudently exposed himself in the exercise of his calling to the cold weather in March 1839, and thereby materially aggravated his complaint. When first visited he appeared dying from suffocation; the dyspnœa was extreme; the face was tumid, and of leaden hue; the tongue purple, but loaded with thick moist fur; the pulse very feeble; and the extremities cool. The chest was universally very resonant on percussion, but the bronchial tubes were loaded in every part with thick viscid purulent mucus, which he expectorated with great difficulty. An emetic, a mustard poultice, afterwards a blister, with a mixture containing ammonia and squills, failed to relieve him, and he died exhausted and suffocated in three days.

2. A poor woman, aged 49, by occupation a cutter of orange chips, subject to emphysema from childhood, and liable in damp cold weather to catarrh, with profuse secretion from the bronchial membrane, had been more than once relieved by the employment of blisters and stimulating expectorants, but had renewed her complaint by going out.

for her work in consequence of the indolence of her strong and idle husband. She was not worse than she had been before, was pursuing the same plan of treatment which had previously relieved her, and was upon the point of sending to the dispensary for some more medicine, when, as I was afterwards informed, she suddenly expired.

3. A man, aged 56, who had for a long time been subject to bronchitis and dyspnœa, and who, in addition to the ailments of those previously noticed, had symptoms of disease of the mitral valve, with ascites and great œdema of the feet and legs. He varied considerably in the amount of his suffering; on some occasions being comparatively free from complaint, and on others affected with violent dyspnœa; but never being entirely free from serous effusion. A variety of diuretics, sedatives, and expectorants, which it is needless to particularize, were employed; and, till within a few days of his death, with very considerable effect. At this time he began to sink rapidly, and expired very suddenly in a fit a few minutes after I had left him, exceedingly ill, but without any appearance of immediate dissolution. Neither of the preceding cases were examined after death, and as they presented nothing very remarkable I have not thought it desirable to detail them at length. In the fourth I obtained permission to examine the body, and as the condition of the lungs, though probably not very uncommon, was interesting in reference both to pathology and to diagnosis, I may perhaps, without tediousness, relate it somewhat more fully.

4. A man, aged 36, of light complexion, with reddish hair and whiskers, the son of healthy parents then alive, became my patient at the Surrey Dispensary, October 22nd, 1839. He had been subject to cough in both winter and summer for thirty years, which originally succeeded to a violent attack of measles. He had been occasionally confined to his bed, however, only during the last three years. He was by trade a carpenter, and his habits were regular, industrious, and temperate, and he was the father of four healthy children. After exposure to wet and cold the day before I saw him, he was affected with increased cough and dyspnœa, and pain of the left side: was seen by the apothecary of the institution, and ordered to apply ten leeches, and afterwards warm poultices, to the affected side, and to take Liq. Am. Acet. ʒss., Vin. Antim. Tart. ʒss., Vin. Colch. ♏x. Aq. ℥j. every four hours. When I saw him on the 23d, the pain of the side had been relieved, but not quite removed, by the leeches; the face was purplish, the dyspnœa considerable, the cough frequent, and the expectoration abundant, thick, yellow, and muco-purulent; the skin was moist, the tongue loaded and moist, the bowels confined, the pulse rather frequent, soft, and weak, decubitus was difficult, and the extremities of the fingers were particularly large and rounded ("clavate"), a condition supposed by Dr. Bright usually to coexist with long continued purulent or muco-purulent expectoration. The chest was very resonant on percussion, especially at the upper part, with the exception of the precordial region, the natural dulness of which was somewhat increased in extent, though lessened in its intensity. In every part of the chest loud bronchial rattles were heard, which in the inferior portion of the lung resembled the gurgling of numerous small cavities, and which, in the superior portion, were accompanied with the prolonged expiration usually attending pulmonary emphysema. The impulse of the heart was feeble, the sounds soft, and the rhythm natural. Ordered

Pulv. Jalap. C. ℈ij. st. sumend. et repte. pro re nata. Empl. Lyttæ magn. lateri dolent et sterno applicand. ℞. Decoct. Senegæ, ℥j., Oxymel. Scillæ, ʒj.; Potass. Nitrat. gr. v.; Tr. Camph. C. ʒss. M. fiat haust. 6tis horis sumend.

By these, and similar remedies, he was so much relieved as to be able to go out in three or four days. Without permission, and contrary to advice and strict injunctions, he resumed his employment out of doors in very wet and cold weather. The next day, as was expected, he was again confined to his bed. The disease returned with considerably increased violence, and notwithstanding the use of emetics, sinapisms, blisters, and expectorants, he expired November 14th.

Inspection by Mr. Nettlefold and myself fifteen hours after death:—

The body was not emaciated, nor were the limbs œdematous. The *Head* was not examined. *Chest.*—On the removal of the sternum the lungs did not collapse as usual, and almost entirely concealed the heart, the right passing over to the left side of the mediastinum. Some old adhesions united the inferior portion of the right lung to the costal and phrenic pleura; while at the superior part the lung was free from adhesion, and exceedingly emphysematous. Some circumscribed lobular portions were quite white and dry, and felt like parchment, or like a portion of emphysematous lung which had been exposed to the air for preservation. Many of the cells were dilated to the size of millet-grains, and the whole afforded a doughy inelastic sensation to the finger when pressed. The separate lobules collapsed upon being incised. The bronchial tubes were nearly filled with purulent mucus, but the lining membrane was not much injected. The lower lobe on the right side was solid from congestion and œdema (arising from his position in the last few days of the patient's life), and broke down easily by pressure of the finger. All the bronchial tubes were much enlarged; scarcely any diminution was perceptible in their calibre after the second subdivision, till they terminated in what, upon superficial examination, appeared to be culs de sac. The mucous membrane at this part was not thickened, but of a deep purple crimson hue, from congestion or imbibition. The upper lobe of the left side was emphysematous like that of the right, and the lower very œdematous, but became moderately crepitant after the removal by pressure of the contained serum. On a transverse section, numerous small cavities, containing much purulent matter, were exposed; they varied in size from that of a tare to a small bean, and resembled, on slight inspection, small tubercular cavities. By tracing them, however, they proved to be immensely dilated bronchial tubes, with the membrane entire and thin, but dark coloured from injection. They decreased but little in size till they terminated in a blind extremity. The pericardium was healthy. The heart was dilated and hypertrophied, particularly on the right side: its valves were free from disease. *Abdomen.*—The liver was large and turgid with blood, and both externally and upon section presented the nutmeg appearance so common in cases of diseased heart. The kidney and other organs, though congested, were sound. No tubercles were discovered in any part of the body.

The death of three of the patients whose cases have been referred to above, and particularly that of the last mentioned, was pretty clearly attributable to exposure to a cold and wet atmosphere, while suffering from an attack of chronic bronchitis of not greater severity than was common to them. From this is sufficiently apparent the importance of confining such patients to a warm and dry apartment. Moist air probably acts mechanically as well as vitally in such cases. It not only operates injuriously by relaxing the mucous membrane of the tubes, and increasing its secretion, but, in consequence of its decreased specific gravity, by expanding the air in the already dilated cells, and thereby inducing increased obstruction to the circulation through the lungs, causing a smaller proportion of oxygen to come in contact with the blood. The man Rowe by the treatment at first adopted regained in a few days his ordinary condition. He went out in a drizzling rain to inspect a church then building in the Borough, of the works of which he was superintendent, and a fatal relapse of his disease was the direct consequence. My experience in the use of small doses of sulphate of zinc, administered as an astringent in such cases, is certainly limited; but in the few cases in which I have ordered it I have not observed the beneficial effects which have been said to result from its exhibition. This patient took it for some time without the slightest apparent advantage.

The exact resemblance of the gurgling present in the lower part of the lungs of the man Rowe, to that accompanying small tubercular cavities with copious secretion, might possibly have led to an error in diagnosis, had not the history, the general symptoms, and some other physical signs, pointed out the extreme probability of that condition which was actually discovered after death. It was not probable that the gurgling arose from phthisical cavities, as it was confined to the lower lobes of the lungs, while simple bronchitic rattles, accompanied with evident emphysema, alone existed in the upper.

The long-continued cough, and the absence of emaciation, rendered the presence of phthisis improbable. But the cavities might possibly have resulted from the softening of the unorganizable product of a low form of pneumonia, which is more frequent in the lower, while phthisis is, in a great majority of cases, in the first instance confined to the upper lobe of the lung. The presence of that condition was, however, rendered highly improbable by the want of evidence of any previous severe inflammatory affection, and by the tolerable health generally enjoyed by the patient, notwithstanding the temporary inconvenience occasionally resulting from his local complaint, and more especially by the absence of the other physical signs of that disease; as dulness on percussion, increased resonance of the voice, and tactile vibration of the parietes of the chest on talking and coughing.

It has been observed by justly celebrated writers on the diseases of the chest, that the difficulty of diagnosis between chronic tubercular cavities and dilatation of the bronchial tubes, is increased, by the latter, like the former, being generally confined to the upper lobes of the lung. This opinion is, in some measure, confirmed by some of the cases related by Andral, Louis, and others; but, notwithstanding the high authority by which it is supported, I may, perhaps, be allowed to express a doubt of its general accuracy. That it sometimes occurs I am well assured; that it is not universal, the case above related, in which the dilatation of the *tubes was entirely confined to the lower lobes*, abundantly proves. From personal observation I am disposed to believe that this bronchial dilatation is ordinarily as general throughout the lung as the bronchitic affection by which it is induced. If, indeed, the opinion of Louis, derived from numbers, that bronchitis principally and primarily affects the inferior lobes, is correct, it would appear at least probable that the dilatation of tubes would also more commonly exist in them than in other parts. But on this subject, as on some others, individual experience compels me to doubt the correctness of his deductions, however highly I may estimate the accuracy of his observation.

CASE OF A
KNOT ON THE UMBILICAL CORD
DESTRUCTIVE OF THE LIFE OF THE CHILD BEFORE PARTURITION; WITH REMARKS.

To the Editor of the Medical Gazette.

SIR,

MRS. D. A., of short stature and 28 years of age, in her third pregnancy, went beneath a bed to fetch a pair of her husband's shoes. On hearing some one coming up stairs, she suddenly backed out from under the bed, rising to the standing posture with a movement of considerable expedition and effort. This was immediately followed by an unusual movement in the abdomen, and with most tumultuous motions of the fœtus, which lasted in a severe and painful degree for a short time. I was sent for to ascertain the nature, and if possible relieve sensations so painful. I found that the fœtal movements had ceased, and directed rest, absolute quiet, and an anodyne to allay the pain of abdomen, as well as to soothe her distress of mind for the loss of her child, which she declared to be dead. This was on Wednesday the 17th of November. Next day her breasts were flaccid and diminished in size; there had been no movement of the child, formerly very lively; and I may add, that she never experienced any movement afterwards. On the afternoon of the 20th of the same month she sent for me. I found her in labour: in three hours from the commencement of uterine action she was delivered of a still-born female, to all appearance come to its full time, or very nearly so. There was one turn of the umbilical cord round the neck of the child. There was nothing particular as to the quantity of liquor amnii, nor was there any remarkable hæmorrhage. As it was dusk, I did not distinctly see the state of the fœtus, and the first intimation of its condition was my finding the cuticle raised by fluid under it into irregular bullæ, and separating by the friction with spirits, which I had recourse to immediately on its expulsion. During labour I observed that the bones of the head overlapped each other considerably more than ordinary. On running my fingers along the cord, I felt a hard firm knot on it, the placenta being still attached. The natural expulsive powers soon brought it away. On more minute examination I found on the funis umbilicalis, near its middle, a very firm hard drawn and distinct single knot; so firmly was it drawn, that the parts involved in the knot were reduced to half the thickness of the rest of the cord, when unloosed, and permanently retained this diminished size. The parts so compressed were pale and exsanguineous. From the knot to the fœtus there were spiral turns of the injected arteries of a very dark purple colour, and they became more injected and distended with blood the nearer they came to the abdomen of the child. The vein had less blood in it than the arteries. The arteries of the thorax and abdomen of the child contained more blood than the veins, which were almost empty. The cord, from its placental attachment to the knot, was less injected; indeed it had almost no blood in it, and was of an indistinct blue or neutral tint. The placenta was of natural size, but very exsanguineous, and of a lighter colour than usual. The mother did well, and has since given birth to a healthy living child. Her previous pregnancies and labours were natural.

Remarks. — From the silence of many English obstetrical writers respecting the existence of knots on the funis umbilicalis, and the occurrence of accidents of the kind just narrated, I was at first led to think that they did not frequently happen. I do not recollect any notice of this particular in the writings of Denman, Burns, and other standard elementary works, and most of the writers who do notice the existence of the knots either deny that they are ever drawn so tight as to destroy life before parturition, or seem to be very doubtful of the possibility of it. I found, however, on a little research, that knots do often exist on the umbilical cord, and I have scarcely ever met a practitioner of much and lengthened opportunity of observation who has not one or more instances of such knots to relate. At the discussion educed by a recital of the above case to the Glasgow Medical Society, in Dec. 1838, Mr. Lyon stated that he had met with a loose knot on the cord of a child born alive and healthy at its full time. Dr. Pagan said that he had witnessed another, the same in kind and in issue. Dr. James Wilson, a very experienced accoucheur, stated, if I recollect aright, that he had seen several such instances, but none of a tight and fatal knot. Mauriceau (in his Traité des Maladies des Femmes grasses, &c. Observ. 133) narrates a case where an extremely firm knot (véritable nœud extrêmement serré) was found on the cord: the child was born alive; which shows, he contends, that the tightening of the knot could only have taken place during the passage of the child. He further adds, that from that time till 1694 he had attended seven other women, whose children were all living, who had a like knot, which he thinks arose from the extreme length of the cord. Five of the children were males, three were females. (Vide Obs. 567 of same work.)

Smellie, however, in his treatise on the Theory and Practice of Midwifery, Chap. iii. Sect. 1, mentions amongst the causes of the child's death and consequent miscarriage, the formation of a knot. He describes this accident in the following terms. "If the navel-string be long, and the quantity of surrounding waters great, the fœtus while young may in swimming form a noose of the funis, through which, if the head only passes, circumvolution will happen round the neck or body; but should the whole fœtus pass or thread the noose, a knot will be formed on the navel-string, which if tightly drawn will absolutely obstruct the circulation."—p. 118. In his second volume he gives three cases in which there were knots on the cord. In only one of these could death of the fœtus be properly ascribed to the condition of the cord in question; that is the first one, which he records as follows. "In the year 1744, my attendance was bespoke to a woman who imagined herself in labour about the end of the eighth month. This, however, was no other than a colicky pain proceeding from costiveness, of which she was relieved by a clyster. In a fortnight after this visit I was called, and found the membranes had broken. The waters were of a brownish colour, and mortified smell. The labour was lingering, and the child when delivered of a livid hue; the scarf-skin was easily stripped off, the abdomen tumefied, the funis swelled and livid, about ten hands' breadth long, with a tight-drawn knot on the middle.

Smellie's second case presents us with an instance of a child born alive and healthy, though there was a knot on the cord. He does not tell us the kind of knot, but says, as we should have expected, that it was loose; whereas in the first and fatal one the knot is as tight drawn as in the case I relate, which it also resembled in having the knot in the middle of the cord. In Smellie's third case there was a loose knot on the cord, but the child probably died from the lingering labour, during which "the head was squeezed to a great length, and the brain too long compressed in a narrow pelvis." (Vol. ii. p. 272.) Baudelocque mentions that such knots are very often found on the cord without causing the death of the child, or even affecting its development. He adduces an instance of a well-formed child, weighing seven pounds, born with a triple knot on its umbilical cord: in the representation or sketch which he gives the knots are not drawn tightly. (L'Art des Accouchemens, vol. i.) Dr. Blundell, in his lectures, used to relate a case, on the authority of Mr. Rogers, one of his pupils, that occurred at New York, in which there were three knots on the funis; and yet notwithstanding these knots injection could be thrown from one end of the cord to the other without difficulty. (Castle's Princip. and Pract. of Obstet. p. 108, 1st. Ed.) Dr. Ashwell, also, in his Practical Treatise on Parturition, mentions having "counted five distinct knots, but there was no diminution in the size or vital powers of the child." It is much to be regretted that authors do not inform us as to the kind of knot.

It is difficult, I apprehend, to say when and how these knots are formed; at what period of fœtal existence they are made. Certain it is that some have been formed very easily on the funis; whilst others were probably formed when expulsion of the child was taking place. Dr. Wm. Hunter suggests that the cord in such cases is arranged, at the time of parturition, in the form of a loop or coil at and within the margin of the os uteri, and that the head of the fœtus passes through this loop as it makes its exit from this aperture, carrying the umbilical end of the cord along with it, so as to form the knot at the very moment the body passes into the world. This, it is highly probable, is the process by which one form of the accident in question may be produced, and in all likelihood the most frequent; but surely it is inadequate to explain the instances in which there are three or more knots; nor does it explain, what I apprehend has taken place in the case narrated, and in others of like nature, viz. the death of the fœtus before any expulsive efforts of the uterus. In noticing this last opinion, Baudelocque says it "cannot have proceeded from observation. Eight or ten or more instances of infants born in vigour at the moment of their birth, although they had a knot on the cord, appear sufficient to invalidate such an opinion." (Vol. i. p. 253.) This, to say the least of it, is not the most logical of arguments; nor does Gardien, who entertains the same notion respecting the impossibility of this tightening of the cord producing the death of the fœtus before delivery, adduce any thing more forcible in the way of argument or observation, though his language be positive enough. "Quelsque soient le nombre et la nature des nœuds qui existent dans le cordon, ils ne peuvent jamais se serrer au point de faire perir l'enfant. (Traité complete d'Accouch. t. ii. p. 172.) And again, in the article Cordon Umbilical, in the Dict. Sc. Méd. he says, "Il est donc impossible, puisque le cordon est beaucoup plus long, que la matrice n'a d'etendue que lorsque le fœtus se porte d'une paroi à l'autre de l'utérus, les nœuds puisent se serrer de manière à intercepter la circulation." No process of reasoning, I apprehend, can settle this interesting and curious point; an appeal to observation and fact alone can establish it; and, however high our speculative notions may rise against it, one clear and unequivocal instance, as I submit the one I record to be, demands a belief in the possibility of the accident in question—a matter of some importance, as bearing on points submitted to the medical jurisconsult. I would, then, employ the words of Seneca, and prefixed by Gardien as the motto to his Traité—"Multum restat ad hoc operis multumque restabit, nec ulli nato post mille secula praecludetur occasio aliquid adjiciendi." (Epist. lib. i. Ep. 64.) Nor is the case I now record a singular one; Smellie's is similar; and we find Levret (L'Art des Accouchemens, p. 144, Paris, 1761) and some before him, very confidently asserting it as their belief that the fœtus was occasionally destroyed before labour by a perfect and tight-drawn knot on the funis, and that a degree of tightness, short of entirely obstructing the transmission of blood by the cord to the child, impeded its development, and stinted its growth. In my case the cord was somewhat shorter than ordinary; it was perhaps made still shorter by the turn round the neck existing before labour began; there was a sudden suspension and permanent extinction of the movements of the child, previously remarkably lively, attended with circumstances (viz. the sudden violent exertion and succussion of the body of the mother) calculated to tighten a knot previously existing, and followed in a moment by phenomena, even violent convulsive movements, which would undoubtedly happen on, and prove characteristic of, the accident under consideration, viz. tightening of a knot on the cord. That the fœtus had been destroyed some time before birth is abundantly evident by the marks of incipient putrefaction which it presented, and that the knot was the cause of its destruction is shewn by as clear demonstration as such a subject will admit of. I am inclined to think that the knot, though not tightened, must have existed before the tumultuous movement of the fœtus, which suddenly and finally ceased because its bulk at this period would not permit a change of position to such an extent as to have formed a new knot, or to have cast it through a noose or loop previously existing. The way, then, most satisfactory to me, of accounting for the accident, and its occurrence at the time specified, is, that a knot, not tightly drawn, must have previously existed, and that the cord being short, and perhaps rendered more so by the turn round the neck, the sudden and energetic movement of the mother effected such a change of position of the child as tightened the knot, to the stoppage of the circulation in the cord and the extinction of its own vitality. I have ventured to think that in its last tumultuous or convulsive movements one or other of the extremities of the fœtus may have got a turn of the cord round it, so as to cause, or assist at least, in the tightening of the knot. The force with which the cord was tied was very remarkable, as the deep indentation on it, at the part involved in the knot, clearly showed. When the knot was undone this indentation continued. I have repeatedly since that time put a similar knot on a cord, and drawn it as tight as I could, but as soon as the knot was undone the indentation entirely disappeared, the knotted part appearing like the rest of the cord. In this respect a knot put on a cord after delivery differs from one put on before it—a fact worthy of remark. Petit, as quoted by Burton (in his Essay on Midwifery, London, 1751,) relates a case where the navel-string of a human fœtus was shewn, which had a knot in its middle, "and the marks of the part that formed the knot could be observed, which proves that the knot had been made long before the woman's delivery." Petit does not mention whether the child was alive or dead at birth, so the case affords little instruction on the nature of the accident under notice, but it verifies my observation, of the marks remaining under the circumstances stated above. Ruysch, in his Observ. Anat. Chirurg. Observ. xi, narrates an instance, accompanied with a delineation, in which the fœtus was destroyed by a very singular modification of knot, or rather twisting, of the funis umbilicalis. He thinks it likely that the accident was caused by the fœtus twisting the cord, in the manner we see daily done, with a bit of string, in order to double it; that is, by twisting the two cords in opposite directions, or only one end of it, the other being fixed; then doubling it, and laying its two portions in close contact, they instantly twine into one cord.

In conclusion it appears, 1st, that knots may exist on the cord without any injury whatever to the fœtus.

2dly. It cannot be doubted that a certain amount of tightness of one of these knots, short of entirely obstructing the circulation in the funis, will affect the development of the child; and,

3dly. The case related, as well as Smellie's case, the experience of Levret and others, clearly shew, that a knot may form on the umbilical cord, and be drawn so tight as to destroy the fœtus, before any uterine action for its expulsion be begun.—I am, sir,

Your obedient servant,
Alex. J. Hannay, M.D.

Anderson's University, Oct. 1, 1840.

IODINE TO CHILBLAINS.

To the Editor of the Medical Gazette.

SIR,

IN looking over some numbers of the GAZETTE, I find a letter under the head of "Treatment of Chilblains by Iodine," Feb. 29, 1840; and as the weather approaches when many will be glad to hear of a remedy for such troublesome visitors, I feel pleasure in bearing my humble testimony *somewhat* to iodine as a cure for chilblains; but I cannot agree altogether with your correspondent, who would have it that, in every instance, it cures. Here I must differ with him; for though I have found the good effects of it when *first* applied, in every case, I must say that when those individuals had a return of the chilblains the same winter, its application proved ineffectual; but I must also remark, that it prevents a return for a much longer period than any any other application I know of, and consequently I would give it the preference: besides this, it has the good effect of relieving the pain and itching after the first or second application. Perhaps the manner I ordered it could be improved on, so as to make it beneficial if the person was attacked a second time the same winter. Should any of your correspondents suggest an improvement, I shall be happy to adopt it and give it a fair trial. The form in which I used it was as follows:—

℞ Tinct. Iodinii, f℥iij.; Liniment. Saponis Co. f℥v. M. Sæpe applicandum.

I used the soap liniment, because it makes the application more soothing and emollient. I never could apply it when the chilblains had cracked; but if applied when the parts are red and swollen, it becomes a powerful repellent. I never had occasion to order chamois leather, the liniment proving effectual without any covering.

Your insertion of the above, if worth a corner in your valuable journal, will much oblige, sir,

Your obedient servant,

J. FITZPATRICK, M.R.C.S.

October 5, 1840.

P.S.—I first used it in the winter of 1835.

ON THE ACTIONS OE THE OBLIQUE MUSCLES OF THE EYE.

By CHARLES RADCLYFFE HALL.

(For the Medical Gazette.)

FEW physiological questions have occasioned more discussion, and led to less certain conclusions, than that of the actions of the oblique muscles of the eye. As considerable difference of opinion respecting them still exists, and as Dieffenbach's operation for strabismus has invested the subject with practical interest, any facts bearing on the question seem worthy of being recorded.

As exemplifying the different views of the actions of these muscles, taken by physiologists of greater or less celebrity, I may remark that the superior oblique by its contraction was thought to direct the pupil downwards and outwards towards the promontory of the cheek, by Albinus, Cowper, Douglas, Haller,[*] and more recently by Sir C. Bell,[†] Dalrymple,[‡] B. Cooper,[‖] and J. Müller;[§] downwards and inwards by Hildebrand, Gataken, and Dr. Knox; upwards and inwards by F. Müller, Mr. Walker, and (it would appear) by Dr. Franz.[¶]

The action of the inferior oblique was considered by Albinus to be that of rotating the eye so as to direct the pupil towards the temple,[**] and directing the pupil upwards. Meckel thought it directed the pupil downwards and inwards; Hildebrand and F. Müller upwards and inwards: Sir C. Bell, Dalrymple, and J. Müller, are also of this last opinion. Dr. Knox states, as the result of his experiments on the dead body, that "the obliquus inferior, when acted on alone, directed the pupil upwards and outwards, bringing the eyeball itself forwards." In his Anatomist's Vade Mecum, lately published, Mr. W. J. E. Wilson thus expresses himself: "The inferior oblique, acting alone, rolls the globe outwards and upwards to the upper and outer angle of the eye."

With respect to the conjoint action of the two oblique muscles, anatomists are not less divided in opinion. Cowper, Winslow, Morgagni, Cheselden, and Haller, thought they served to keep the eye suspended in the orbit, antagonised each other, and acting vigorously caused the eyeball to project. Dr. Knox considers them simply as antagonists to the recti, which would otherwise retract the eye, and found that, when shortened together, they pulled the eyeball forwards, and directed the pupil downwards and inwards. Prof. Müller also states that when both oblique muscles act together, the eye is drawn forwards and the pupil directed inwards.* Sir C. Bell says, "Their combined action draws the eyeball towards the nose."† On the other hand, Mr. W. J. E. Wilson states that "both muscles acting together draw the eyeball forwards, and give the pupil that slight degree of eversion which enables it to admit the largest field of vision."

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[*] Elementa Phys. 1763, vol. v. p. 420.

[†] Natural Exposition of the Nerves, 1824, p. 312.

[‡] On the Eye.

[‖] Guy's Hospital Reports, No. 7, p. 470.

[§] Baly's Translation.

[¶] MEDICAL GAZETTE.

[**] Lancet, vol, xxxvi. p. 492.

Sir C. Bell and Dr. Quain‡ deny that they antagonise the recti, because they exist in animals in which the globe cannot be retracted, and are not more developed in those which possess an additional special retractor muscle. The first objection seems only to prove that to antagonise the recti is not the sole function of the muscles, and that it may not be one of their uses in animals where no mechanical impediment to the retraction of the eye exists. Nor does the addition of a special retractor muscle of necessity demand increased development of its antagonists; the latter are not required to overcome the voluntary retraction of the globe, but only during the absence of such action to suspend the eye, and prevent it from being drawn backward by the tonic contraction of their opponents. Mr. B. Cooper found, on dividing the oblique muscle both in rabbits, that there resulted permanent retraction and depression of the globe on the floor of the orbit. Sir C. Bell enters fully into the question, and from his experiments considers it proved that the division of the oblique muscles does not in any degree affect the voluntary motions of the eye; but that the obliqui perform all the involuntary revolving motions so essential to the due preservation of the organ. He considers that the recti, being voluntary muscles, and inactive during sleep, and that the involuntary obliqui are then acting alone; and he accounts for the upward and inward direction of the pupil during sleep, by supposing that the fourth nerve causes, "on certain occasions, a relaxation of the muscle to which it goes;" and having found that in the monkey the upward and inward motion, which accompanies winking, was more rapid after division of the superior oblique, such relaxation of the trochlearis would favour, he conceives, the natural action of the inferior obliquus. Mr. Dalrymple, on the other hand, views the superior oblique as a voluntary muscle relaxed together with the recti during sleep, whilst the inferior oblique only is involuntarily contracted, and carries the pupil upwards and inwards, "which is found to be the case, when, from whatever cause, the exercise of volition upon the other muscles is suspended." Mr. Hunt, in 1836*, published a very ingenious paper, in which he offered a rationale of the fact of the orbital muscles receiving nervous energy from so many different nerves. In 1838, Dr. Baly's admirable translation of Müller's Physiology appeared, and at p. 930, the explanation offered of the muscular nerves is very similar to that of Mr. Hunt. The two motores oculorum only are consensual in their action; the two levators of the globes always act together; never, naturally, one without the other; so likewise do the adductors and the depressors; whereas the eyes are dissociated in their movement outwards, and hence, as the obvious and direct abductor has a special nerve, it is *à priori* probable that, of the two oblique muscles, that which has a special nerve should be the one designed for dissociate action; that supplied in common with the consensual muscles, the one for associated movement; an argument against those who hold that the superior oblique can singly adduct one eye to correspond with the abduction of the other.

Whilst instituting some experiments on the nerves which pass into the orbit in the dog and cat, I found, in reference to the muscles, the following results:— The animal being stunned, and its skull opened, the nerves operated upon being carefully isolated, two needles were inserted into each nerve at a slight distance from each other. When the opposite wires of a moderately powerful galvanic apparatus were applied to the needles, muscular action was induced. The action was not a sudden firm contraction, persisting without relaxation as long as the connection of the wires and needles was kept up, but a quivering motion of the globe in a different direction resulted, as if the muscle in action were submitted to a series of repeated small irritations. Separation of the nerves at their origins from the brain did not immediately destroy the irritability of the muscles, but in a cat, after it had been killed by division of the spinal cord between the first vertebra and the occiput, and in a dog poisoned by a large dose of hydrocyanic acid, I was unable to excite contraction by applying galvanism either to the nerves, or the muscles of the eyeball themselves, beyond the slightest quivering, which ceased almost instantly. In the dog, when the portio dura was galvanised, slight twitching of the facial muscles certainly resulted, but not nearly to so great an extent as when no prussic acid had been administered.* In the cat, when the needles were inserted into muscles supplied by nerves coming from the spinal cord below the point of division, contraction resulted.

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* Baly's Translation, p. 930.

† Loc. citat. p. 313.

‡ Elements of Anatomy.

* Transactions of the Provincial Medical Association.

In the instances which afforded decisive results the following occurred:—

1. The needles being inserted into the ophthalmic division of the fifth nerve of the right side, the right eye was moved quickly by different orbital muscles alternately, and the lower jaw was slightly moved.

2. This nerve being divided at its origin, and separated from the rest, and the galvanic poles again applied to the distal portion, no action resulted.

3. The third nerve was separated from the brain into the end next to the eye; the needles were inserted; a brisk quivering motion followed. The pupil was now directed upwards, now downwards, then inwards, and occasionally turned with a semi-rotatory motion upwards and inwards beneath the inner canthus; these several motions occurring in quick succession.

4. On galvanising the fourth nerve the pupil was quickly directed downwards and outwards, to attain which position it swept round the lower lid in a somewhat revolving manner, and was not drawn, as it were, in a straight line to the axis at which it arrived.

5. On galvanising the sixth nerve the globe was drawn outwards and retracted, and the haw protruded.

The contraction of the orbital muscles, which followed stimulation of the fifth nerve during its connection with the brain, was either fallacious, depending on the needles touching the contiguous third nerve, or else was owing to reflex action through the brain. It evidently proves nothing in favour of the fifth supplying motor influence to any of the structures of the eye, as the effect certainly ceased when the nerve was separated from its origin, and could, therefore, be more effectually isolated.

It may not be deemed irrelevant here to notice some slight peculiarities in reference to the anatomy of the ophthalmic portion of the fifth in the dog and cat. The lenticular ganglion is situated farther from the optic nerve than in man, and is formed exclusively in the third nerve. The third nerve, immediately on entering the orbit gives off its branch to the levator palpebræ, and that to the superior rectus; passing forwards, the remaining trunk terminates by dividing into three nerves for the internal and inferior rectus, and inferior oblique respectively. Just before this threefold division, the lenticular ganglion projects like a small knob from the upper part of the nerve. In size about as large as two pin-heads, it furnishes superiorly a nerve about two lines in length, which is directed upwards, forwards, and inwards, to the optic nerve; it here divides into two fasciculi of ciliary nerves, one lying inferior and external, the other superior and internal to the optic. To the latter set become applied two long slender filaments from the nasal nerve; they do not appear to combine, but only to run together to their common destination. In no dissection, however carefully conducted, generally under water, could I find a root from the nasal nerve to join the ciliary ganglion. The naso-ciliary filaments are white and firm, though exceedingly slender, and may be traced as far back as the gasserian ganglion, without any further connection with the nasal branch than lying in the same neurileme. I was unable to find any filament directly from the sympathetic to the lenticular ganglion, but just below the termination of the naso-ciliary filaments in the gasserian ganglion of the dog, the sixth nerve sent to the ophthalmic a large twig directed from behind forwards, of the same colour and consistence as the nervous twigs which, a line posteriorly, it had received from the cavernous plexus of the sympathetic. Very evident grey nerves are seen passing into the under surface of the ganglion of the fifth, in a preparation from the human subject, and also in another from the dog, which I dissected. The nerve to the inferior oblique is the longest of the three terminal branches of the third nerve, and in both cat and dog, in its connection with the ophthalmic ganglion, it is very markedly different from the others: it appears to come off from the lower part of the anterior margin of the ganglion itself, which is not the case with the rest: it gives off no branches before its entrance into the belly of the inferior oblique;—a circumstances, I think, favouring the opinion of Dalrymple as to the inferior oblique being the only truly involuntary muscle of the orbit.* The internal rectus of the left eye was divided for convergent strabismus. Twenty hours after the operation, when the woman looks straight before her, the axes of the two eyes perfectly coincide. When the right eye is directed outwards, the left remains with its pupil in the centre. When the right eye is directed towards an object at the root of the nose, the pupil of the left is also directed upwards and inwards, but not inwards quite to the same extent as the right eye. When desired to look at the tip of the nose, the pupil of the left eye is directed downwards and inwards. If the sound be closed, and the left pupil directed inwards as much as possible, the patient is conscious of considerable effort, and the maximum of inversion still leaves some conjunctiva visible between the cornea and semilunar fold, which, of course, is not the case on the sound side; so that the power of direct inversion, though slightly possessed by the left eye, is very different in the two eyes.

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* Does not this diminution of muscular irritability account for the sedative effects of hydrocyanic acid as a remedial agent in allaying spasm?

There is every reason to suppose that the internal rectus was here entirely divided; the tendon was completely over the blade of the scissars, and appeared without any adhesions farther back: before the cut was made the eye immediately started to its proper axis, and is not inverted by merely directing the opposite eye outwards, which would certainly ensue were the internal rectus in tact, as exemplified in another case where some of the upper fibres of the tendon escaped division. What muscle, then, effected the inward movements to the degree in which they remain? Some would answer, the superior oblique alone, others the inner fibres of the rectus superior or inferior, according as the upward or downward direction predominated. It is not proved that part of any muscle of the eye can act without the whole, and if the view that I have been endeavouring to substantiate be correct, the superior oblique alone cannot be the agent. Do not the remarks which have preceded justify the conclusion, that the motions in question may be ascribed to the joint contraction of both obliqui, combined with the superior rectus in the upward and inward motion, with the inferior rectus in that downwards and inwards?

Manchester Royal Infirmary,
October 5, 1840.

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* Though not strictly pertinent, I may mention that in neither dog nor cat did I find a distinct lacrymal nerve from the first division of the fifth, but two long nervous filaments passed upwards and outwards along the outer part of the orbit, and supplied twigs to the lacrymal gland and fat and integuments near the outer canthus, one (subcutaneus malæ) passing through the cheek-bone. Just anterior to their origin from the second division of the fifth, that trunk receives organic filaments which pass from before backwards from the spheno-palatine ganglion. This ganglion is a flat, elongated, oval nervous mass, lying on a muscle anterior and internal to the infra-orbital trunk, with which it is only connected by means of filaments which pass from the ganglion to join the different branches. The ganglion sends backwards and inwards twigs to the soft parts, and to the mucous membrane at the back of the pharynx, backwards and outwards to the infra-orbitar nerve and downwards small filaments, which become united to those twigs of the infra-orbitar nerve, which are distributed to the teeth, back part of the roof, the mouth, and soft palate. Does not the fact of the palatal nerves in the dog being more especially furnished by the second primary branch of the fifth, and not coming, as in man, from Meckel's ganglion, support Dr. Alcock's view of the posterior palatine nerves being partly gustatory?

ANALYSES AND NOTICES OF BOOKS.

"L'Auteur se tue à allonger ce que le lecteur se tue à abréger."—D'ALEMBERT.

A Practical Treatise on the Diseases peculiar to Women. Illustrated by Cases, derived from Hospital and Private Practice. By SAMUEL ASHWELL, M.D., Obstetric Physician and Lecturer at Guy's Hospital. Part I. Functional Diseases. London: Highley, 1840. 8vo. pp. 208.

IF Dr. Ashwell's opportunities for practical observation were exclusively confined to the extensive Lying-in Charity of Guy's Hospital, he would have "ample scope and space enough," either to correct or confirm the prevailing doctrines as to the nature and management of female diseases. And as we know no reason why we may not for once depart from the common custom of ending a notice of a work with the reviewer's opinion of its merit, we begin by saying that he has made good use of his opportunities. It is true that this treatise is not remarkable for any novelty of views, but it is sound and sensible in its doctrines, and therefore reflects credit upon the writer, and well deserves the perusal of the junior practitioner.

Dr. A. proposes to arrange the diseases peculiar to women in three great divisions. In this, the first, he places the functional. In the second we are to have the organic diseases: and, in the third and last part of the work, will be comprised the affections of the pregnant and puerperal states. The subjects treated in the first part are chlorosis, with cases, amenorrhœa, emmenagogues, dysmenorrhœa, profuse menstruation, menorrhagia, leucorrhœa, and inflammation of the cervix uteri; affections attendant on the decline of the catamenial functions.

The chapter on chlorosis is brief and practical, and, as far as our experience teaches us, correct both in the description of the disease and its mode of management. We think with Dr. A. that it may be fairly assumed that chlorosis primarily depends on a morbid condition of the blood, which secondarily affects the ovaries and uterus, by retarding their growth. This opinion is supported by the fact, that in the blood of chlorotic patients there is an increased proportion of the serum, with a marked diminution of the crassamentum. It would not be difficult to trace to this morbid condition of the blood many, nearly all, the different theories which have been propounded. Andral's remarks on the anæmia of chlorosis are quite confirmatory of Dr. Ashwell's views. The leading and most frequent complications of chlorosis with functional derangement of different organs are clearly and usefully described. In the general plan of treatment too we fully concur. "The treatment of chlorosis to be extensively successful must be early and most seduously prosecuted." The treatment of the most common form of chlorosis, namely, that accompanying puberty, may be regarded as the type of the treatment of all the others, embodying the principles which, with greater or less modification, are universally applicable. "It is here, at the very threshold of the disease, when its character is not understood, or when it is treated empirically, that the greatest error is committed. It is viewed as a local, not as a constitutional affection, and many are the individuals who have been sacrificed to the vain and ignorant attempt of prematurely establishing menstruation: mercury, drastic purgatives, and emmenagogues, have irretrievably destroyed the constitutional power, and paved the way for phthisical disease." Electricity, Dr. A. says, deserves to be mentioned as a local uterine stimulant. He has seen many cases where its efficacy was decided. We have not been so fortunate; we too have tried this agent, and we believe in appropriate cases, without either harm or benefit. Sixteen cases of chlorosis are briefly detailed. The second chapter, on amenorrhœa, contains a good practical sketch of this disease as it occurs in different constitutions. The remarks on the limits within which the employment of emmenagogue remedies ought to be restricted, offer a useful lesson to young practitioners, of which we know, from abundant experience, they often stand in need. With some, stimulant vaginal injections are quite the fashion. We hear much of their curative powers, but nothing of their danger. But they are not safe remedies where there is uterine congestion. In two such cases dangerous inflammation of the cervix uteri and upper part of the vagina followed their use. Stimulating fluids have been, as emmenagogues, injected into the uterus. Death, from peritoneal inflammation, has several times followed the practice, and in two instances which were witnessed by Dr. Ashwell fatal results had nearly ensued from most alarming attacks of this formidable malady. There is no danger, and more promise of benefit, from stimulating injections being thrown into the rectum. Dr. A. has used, with advantage, the favourite enema of Dr. Schonlein: ten grains of aloes, and one ounce of mucilage, twice or three times a day. Mercury is our most powerful deobstruent, if judiciously managed.

Of the ergot of rye as an emmenagogue, Dr. A. "cannot speak favourably:" neither can we, nor can we perceive that it is "on principle easy to understand how it should produce such an effect." Iodine is, occasionally, a good emmenagogue, but it has frequently failed in our author's practice. The remarks on vicarious menstruation, and on the other subjects we have above mentioned as forming the contents of the work, are practically good. This first part of Dr. A.'s work is a very favourable specimen of his ability, and we doubt not, when it is concluded, that it will fairly add to his reputation.

Elements of Materia Medica; comprehending the Natural History, Preparation, Properties, Composition, Effects, and Uses of Medicines. Part II. The Vegetable and Animal Kingdoms. By JON. PEREIRA, Esq. F.R.S. &c. &c. Longman & Co.

WE have pleasure in being able to announce the second volume of Mr. Pereira's Elements of Materia Medica, which completes the work; comprehending the Vegetable and Animal Kingdoms. It is executed in the same style and manner as that which appeared last year. The mass of information it contains is immense, constituting by far the most complete system of materia medica which has been published in this country. It cannot fail to become a standard work.

MEDICAL GAZETTE.

Friday, October 16, 1840.

> "Licet omnibus, licet etiam mihi, dignitatem *Artis Medicæ* tueri; potestas modo veniendi in publicum sit, dicendi periculum non recuso."
>
> CICERO.

PROGRESS OF THE PROFESSION.

IN speaking last week of the condition of the Medical Schools as an evidence that the present number of practitioners is, in proportion to that part of the population who can remunerate them for their attendance, in excess, we expressed an opinion that the evil would remedy itself, and was, in fact, even now in progress of being removed. If this opinion be, as we have no doubt it is, correct, it is fortunate; for as evils of this kind, like the diseases of the body, rarely remain stationary, but tend, with more or less rapidity, to recovery or destruction, another result, worse than the temporary evil which has happened, might have been threatened. It might have been that there would take place no reduction in the number of the members of the profession, (such as we said last week was evidently indicated), but a reduction of their respectability. For it is clear that even the smaller remuneration which is now afforded to the average of practitioners would be sufficiently attractive to persons in a lower grade of society, who, if they could gain admission into the ranks of the profession on easy terms, would find there both an increase of their respectability and a good return for their trouble and small expenditure. There could be, in the case of an excess of practitioners, only one alternative—either their numbers must be gradually reduced, or their station in society. The latter has happened to many honest callings which, from being once deemed honourable, have now fallen into disrepute; the former is happily the course which the mischief in our case has chosen for itself.

It is probable that for this fortunate result we may principally thank the increased demands for general and professional knowledge which have been made upon the candidates for professional dignities, and, as necessarily connected with these demands, those for an increased expenditure of money. It is, we know, a favourite theory with many, that the roads to professional practice should, like those to eminence in learning, considered abstractedly from its application in earning money, be open and unobstructed to all, without respect to rank or pecuniary means; but it is surely not going too far to say, that had they been so for only the last twenty years, the medical profession would, by this time, have been irrecoverably depressed. With no increase of general profits, but a still greater surplus than actually exists of those who have to divide them, it is impossible but that its members must have been degraded from the deservedly high station which they now hold in society.

Reflecting on the conclusion that the medical profession was still likely, in successive years, to continue rising in the scale of society, both scientific and political, our attention was naturally drawn to the progress which its several ranks have made since their first origin. It can never harm or annoy any honest man, who has gradually raised himself in society, to look back upon the condition in which he was born and bred; nay, it has been said by one who spoke well on all such subjects, that the most intense enjoyment of which the human mind is capable, is that of a man who, having been exalted for his virtues, returns to the home of his childhood, and contemplates all the scenes that were familiar to him in his early days. It should be the same with every one who, in an honest *esprit de corps*, considers the history of his calling; he should feel pride at every upward step it has honestly made, and should look with sorrow on every past, or probable future, degradation.

The gradual rise of the medical profession has, indeed, been most remarkable, and is, we believe, without parallel in any other profession or trade. Who, for example, could believe that the apothecary of the present day is a lineal descendant fromthose of two centuries ago, whom he now resembles only in name? Many amongst us (*loquitur apothecarius)* have probably forgotten that our forefathers associated with the men of so ungentle a craft as the grocers, and were so little removed in rank from them that their common company was not named after what we should think must have been its better members, but was called indiscriminately the "Grocers or Poticaries' company." Nor was it till the reign of the sagacious and learned James the First, that a king could be brought to determine of "his own wisdom and mightiness the propriety of separating" the two classes, and in order "to promote the full dignity of the faculty of the pharmacopolites, before sunk into disrepute, and despised," to grant that all the freemen of the old company, who were educated in and practised pharmacy, should constitute a distinct corporation, and be called by the name of the Master, Wardens, and Society of the Art and Mystery of Pharmacopolites of the City of London.

Such was the origin of the Apothecaries' Company; once identified with Grocers, whom they have now left so far behind, as to make room for the introduction between them of another class, the chemists and druggists, who now perform some of the higher offices of the medical profession, in addition to all those that were at first discharged exclusively by the apothecaries.

But probably many who have had to do with the Pharmacopolites' Company are unaware that the licentiates, are a class which was only of late years appended to the society, and which still forms no essential part of it. It was only by degrees that the members of the Company rose from being the dispensers and administrators of the prescriptions of the physicians; nor could they exalt themselves even so high as the station of the chemist of the present day, till one of their most worthy predecessors, William Rose, in 1703, after suffering three several defeats in the Court of Queen's Bench, obtained a reversal of that Court's judgment in the House of Lords, and had it established for ever that an apothecary may make up and administer medicine for a patient without any license from the faculty, and without the direction of any physician.

So great a right being gained did not fail to make this branch of the profession infinitely more attractive than it had hitherto been; and from the time when it was obtained, the apothecaries might be reckoned as sure of enrolling the greater number of the members of the common profession. But the facility of admission into a station which conferred so much advantage at so small an expenditure would have endangered its reputation, had not the bill of 1815, by excluding all who had not proved that they merited a license to practise, secured the respectability of the class, by fixing for its members a certain standard of knowledge, and so indirectly, of education and pecuniary means. Defective as in many respects it undoubtedly was, the bill of 1815 deserves to the full the credit of having, by the introduction of a new class, the Licentiates, secured to the Company the association of a body of gentlemen, by whom its character might be known and appreciated, not as before, only in and near London, but throughout the kingdom.

The next most important advance must be in the recollection of most of our readers—that, we mean, by which it was determined that an apothecary might not only prescribe the medicines he should himself administer, but might receive an adequate remuneration for that which is to him of yet more importance, his time and the exertion of his talents. Thus, then, from being the companions of grocers, apothecaries have, in two centuries, raised themselves to privileges and an estimation scarcely short of those of the physicians, and differing from theirs in degree rather than in kind. The progress having been made honestly, there can be no pain felt in looking back on it; it has been the result in part, and perhaps most visibly, of the energy and public spirit of a few, but in a still greater, though not so evident a degree, of the gradual increase in the amount of education which has been from time to time, and especially of late years, required of the candidates for the license of the Company.

The rise of the surgical branch of the profession has not been less remarkable, commencing, as it probably did, from even a lower grade, that of the barbers and blacksmiths, who were occasionally called in to perform the chief brutalities of monkish surgery, and having attained to the enrolling among its members many of those who have in the most eminent degree advanced the whole science of medicine. But its story is too well known to need repetition; Hunterian orations and introductory lectures have made the guild of barber-surgeons, the separation of the latter class, and their first and subsequent charters, matters of common knowledge. It is sufficient to say here, that the elevation of this, as of the preceding branch of the profession, has been purely the result of constantly maintaining a standard of knowledge among its members proportionate to, and always far above, the constantly increasing improvement in the condition of the world at large. And this must ever be the principle upon which future progress will be secured; that to the large mass of the world high intellectual standard is indirectly a money-standard; it demands from the great majority of men a high amount of education, such as cannot be obtained without considerable expense, and can be dispensed with only by those few whose eminent talents would ennoble them in whatever station they might move, and would, more worthily and certainly than money alone, raise them from the lowest to the highest rank.

That an increase of knowledge is sure to be associated with, or followed by, an increased social elevation of the members of a profession, is proved further in our case by the fact that, without such an increase, those who started fair with us have remained stationary, or have retrograded. With grocers, blacksmiths, and barbers, the medical profession no longer holds fellowship; they have long since ceased to regard us as relations, great as would be the honour conferred upon them by the connection. In conclusion we may remark that, of those who practise physic, one class still remains at the same level of degradation in which it has ever lain — the quacks, in all ages an uneducated, ignorant, and dishonest set of men, whom no ill-gotten wealth has ever been able to convert into gentlemen, and who have never, though they have fed upon the credulity of the world for centuries, attained to the possession of the smallest share of the respect even of their victims. Such they must remain; money though they may earn it largely, will never give them rank; their ignorance, and their consequent need of concealing it by impudence and fraud, must always neutralize all the advantages it might offer; and even Mr. Warburton's measure, if he could carry it, and give them a kind of side-wind license, would only make them registered impostors.

ON RAPE AND ITS PUNISHMENT.

THE following passage occurs in the last number of the Quarterly Review, in an article on the "Life of Sir Samuel Romilly." After some observations against the total abrogation of capital punishment, the reviewer says, "To this general suggestion we beg leave to add one word on the bill lately introduced by Mr. Fitzroy Kelly. We were exceedingly surprised that the principle of *generalizing* — which, in the diversity of human nature, is sure to produce anomaly—should have rendered that honourable and learned gentleman reluctant to admit exceptions even in the cases of murder and high treason; but we are still more surprised that the case of *rape* was not added as a third exception. We are well aware of the suspicions to which many accusations of this class are liable, and we do not quarrel with the almost extreme reluctance of judges and juries to convict in cases which, in general, rest on the evidence of a single person, and that a person liable to the strongest interests and influences that can warp human testimony. Of such dubious cases we do not speak, and, in practice, we venture to assert that they are safely intrusted to the jealous discretion of the jury and the judge; but for cases of real and indubitable violation, where what is lost is more precious to the individual, and more important to society, than life itself—which, in certain cases, must involve husbands and children in irredeemable and unredeemable misery —we do say that against such a crime— being, in its immediate motives, stronger, and in its consequences more frightful, than murder — an equal protection should be given. It would speak little for the feelings or the morals of a society where the honour and purity of women should be guarded under no higher sanction than a spoon or a snuff-box*."

Our regard for truth and justice induces us to touch upon a few points which the reviewer has totally overlooked.

The first is, that the weight of medical evidence, as well as of common sense, is against the possibility of rape in the great majority of instances. On this point the reader may consult the authorities quoted by Beck (Elements of Medical Jurisprudence, fifth edit. p. 90, et seqq.) For instance. "Metzger only allows of three cases in which the crime can be consummated—where narcotics have been administered—where many are engaged against the female—and where a strong man attacks one who is not arrived to the age of puberty."

The reviewer, indeed, does not object to the acquittal of the prisoner in what he calls "dubious cases;" but, then, the truth is, that these cases, so far from being dubious, are the clearest in the world; they are the ones in which the prosecutrix is guilty of flat perjury. The books are full of instances where the prosecutrix was ready to sacrifice a man's life with the hope of patching up her reputation for a time, but where her case broke down under the incredible absurdity of her own evidence. These are pure fictions. "For one *real* rape that is met with at the assizes a dozen or more *sham* ones are preferred†." This is, no doubt, true; but are the convictions only one in thirteen?

The "dubious cases" are the majority of those in which conviction takes place, where the woman merely exaggerates the amount of her resistance, and persuades the jury, as she has persuaded herself, that she did the utmost to prevent the loss of her honour.

Secondly, the reviewer, in a previous page, quotes the following passage from a letter of Sir Samuel Romilly's. "I am much obliged to you [Roget] for giving me your sentiments on the question, whether any crime ought to be punished with death. The objection you make to the punishment of death, founded on the errors of human tribunals, and the impossibility of having absolute demonstration of the guilt of a criminal, strikes me more forcibly than any argument I have ever before heard on the same side of the question." Sir Samuel Romilly did not go so far as his correspondent, though admitting that the argument had great weight. But if this argument is powerful, when applied to other offences, where the evidence is as strong as human frailty can afford, what must it be when applied to a crime which the best judges allow to be barely possible; where the only evidence is that of a single person, "and that a person liable to the strongest interests and influences that can warp human testimony;" and where the prosecutrix so often yields to the temptation, that twelve accusations out of thirteen are sham ones? For this, therefore, above all other crimes, it is necessary to have a revocable punishment.

After all, much must necessarily be left to the discretion of the prosecutrix; for it would be impossible for the most acute legislator to define the boundary between that slight resistance which is the last compromise between instinct and modesty, and the real struggles of indignant innocence. But under a mitigated code, if the complainant should misstate the transaction, it will be gratifying to herself, as well as to society, that the error is not irredeemable, and that life has not been sacrificed to her resuscitated modesty. At the worst, after some years of seclusion, the prisoner will come forth a wiser man; and in doubtful cases her character will have been established by the solemn sentence of the court.

If a complete abrogation of the penalty of death for rape should seem dangerous, the exceptive cases which we quoted above from Metzger might still be liable to the punishment.

Lastly, the reviewer speaks as if female purity would be unsafe if rape were not punished by death. We believe that there is no other country in Europe where it is supposed to require this protection; and moreover, that no execution for this crime has taken place in England for several years.

MR. WARBURTON'S BILL.

[We very readily give insertion to the subjoined letter from Dr. Crosse, although we have the misfortune to differ from our respected correspondent.—Ed. Gaz.]

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* Quarterly Review, No. 132, Sept. 1840, p. 385.

† Mr. Amos, in Med. Gazette, vol. viii. p. 34.

To the Editor of the Medical Gazette.

SIR,

I AM a constant reader, and hope to be excused for addressing you in opposition to some of the sentiments expressed in the last two numbers of your journal. Residing in the provinces, and acquainted with the state of the medical profession from extended observation, as well as lengthened experience, I have arrived at the conclusion that its present distracted and unprotected condition calls for legislative interference. In common with numerous members of our fraternity I have looked anxiously for Mr. Warburton's bill; and now that it is put forth, I am not less anxious that it should be deliberately and candidly discussed.

You will pardon my boldness in remarking, that you seem determined, by having the first blow, to endeavour to put down this proposed bill *in toto*—to strangle it in its very birth beyond the possibility of resuscitation, as if it contained nothing calculated to meet the wants of either the community or our profession. It will be the duty of every practitioner to peruse the whole bill ere he makes up his mind as to the value of its numerous provisions. Hitherto I have only seen an abstract; but this has sufficed to enable me to form an opinion upon some points. It may, indeed, be said that there are two bills: the one which takes precedence, extending to Clause 18 inclusive, and to which alone I beg to direct your readers' attention at present, relates to "registration of all qualified members of the medical profession" upon a uniform plan, in the whole of the United Kingdom. Are you, Mr. Editor, so kind as to assure us that such a registration is not required? or do you object to the plan by which the present bill seeks to accomplish the desired purpose? I confess that, looking generally at this registration bill, without entering minutely upon each clause, I think it is admirably suited to benefit the profession.

Our brethren are all convinced that the legal profession knows much better how to take care of itself than the medical; yet it is heavily taxed for registration, each practising lawyer in England being compelled to pay *eight pounds* annually for his license; and the large sum thus raised does not go in support of any privileged corporate body, but to the public revenue. If lawyers are content to be thus taxed, we may be sure there is some good in it; and I trust your readers will remember this, and not take alarm at your outcry about being "taxed to purchase chains for themselves." With about fifteen thousand medical men in England, and nearly as many in the rest of the empire, a tax so small as to be only nominal will suffice.

Before concluding, I must beg you to allow me to reiterate, that, in my humble opinion, a registration of all qualified members of the profession is a first and important desideratum: it should apply to the entire of the United Kingdom; and can only become efficient by being annually renewed and published: and since medical attendance must be regarded as a necessary, not a luxury, required by the poor as well as the rich, no higher tax should be imposed than will meet the expenses of carrying into effect and sustaining the measure. These and many other valuable conditions are intended to be fulfilled by the registration clauses of the "Medical Profession Bill," which, however it may be received by our medical corporations of all grades and sorts, will, I have reason to believe, meet with deliberate and serious consideration from the great body of provincial practitioners.

I beg to subscribe myself, sir,
Very obediently yours,
JOHN GREEN CROSSE.

Norwich, Oct. 12, 1840.

CLINICAL LECTURES,

BY W. DAVIDSON, M.D.,

One of the Physicians to the Glasgow Royal Infirmary, and Lecturer on Materia Medica.

Effect of various tests on the urine in Diabetes Insipidus—Treatment. Diabetes Ureosus—Remarks.

DIABETES INSIPIDUS.

HENRY LEVI, admitted 18th of January, 1840, æt. 24: Polish Jew, hawker, of full and flabby habit of body. Complains of soreness and weakness in back and lower extremities, great thirst, and general debility. Appetite voracious, and he has frequent calls to void urine, as often as every half hour; perspires none, and is losing flesh rapidly. Urine, to-day, amounts to 20 pounds, specific gravity 1006, of a pale straw colour, has very little taste and a slight odour. First observed complaint about seven months ago, after exposure to cold and wet, while fatigued. Five months ago, he states that his urine was diminished to nearly its natural quantity by the use of opium. In this case the disease is characterised by many of the usual attendant symptoms, viz., weakness in back, loins, and extremities, particularly his knees, which are often very painful; excessive thirst, voracious appetite, frontal headache, constipation, diminution of the physical weight; he also complains of confusion of head, and loss of memory. He is still of rather a full habit of body, and his skin is soft and smooth. His urine was of specific gravity 1006, on his admission, and it still ranges about the same, being more generally 1007, while it was once or twice as low as 1004. Its quantity is generally from 18 to 20 pounds, but a few days after his admission it amounted to 28½ pounds; it is almost as colourless and transparent as water, has a slightly saline taste and urinous odour, deposits a very slight flocculent precipitate on standing for several days, and gives out an ammoniacal odour. No deposit is produced by heating it, or by the addition of nitric acid; it does not affect litmus or turmeric paper. Iodic acid and gelatinous starch, when added to it, cause, in a short time, a purplish colour, which gradually deepens into a purplish blue tint; but by no means so deep as that produced in the healthy urine by reagents. 1000 grains of his urine were evaporated to dryness, and the extract amounted to 8·2 grains; of this 5·0 grains were dissolved in three successive portions of alcohol. He was passing daily about 20 pounds of urine at this period; now, upon this calculation, the amount of solid matter passed in twenty-four hours would be 944 grains, while, according to Dr. Thomson's analysis, if the solid constituents of the urine be about 42 in 1000 grains, and the average diurnal quantity be 3 pounds (36 ounces), there ought to be only 725 grains of solid extract.

Mr. M'Gregor found the diurnal quantity of urea, in a healthy person, to be 428·5 grains, which he considered, however, rather beyond the healthy standard: now by calculation this patient must be passing daily 576 grains of urea, which is considerably above the average proportion, and will nearly account for the extra quantity of solid matter contained in the daily amount of urine, for in other respects it appears quite natural in chemical constitution. Does this case, then, belong to that class of diseases which are characterised by a great increase of urea, in the urine, named by Dr. Willis, in his excellent work, azoturia, or is it merely a variety of hydruria, where the only thing abnormal in the urine is a great increase in the quantity of aqueous secretion, but where the proportion and quantity of its constituents are natural? The specific gravity of ureous urine is generally high, although there are recorded exceptions to this rule. Dr. Willis states that it ranges from 1018 to 1035; but he quotes a case related by Mr. Rees, in which it was only 1008, and where the extract from 1000 grains amounted to 15 grains, of which 10·2 were urea. This patient's disease seems to be of the same nature as the last case alluded to, and it is probable that it is merely a variety of hydruria; for the increase of urea is not very excessive; and though it must tend to debilitate the patient by the extraction of an extra quantity of nitrogen from the system, yet certainly no very serious weight can be attached to this consideration. The prognosis, however, of this affection is certainly more unfavourable, in as far as the urea exists in abnormal quantity; for such diseases produce a more decided impression on the constitution than simple hydruria, although neither of them are incompatible with a considerable term of life.

Treatment.—As there are some reasons for believing that, in this disease, as well as in diabetes mellitus, the digestive organs are in a state of derangement, a primary part of our treatment was attention to the stomach and bowels. His diet was, therefore, regulated, and it consisted of soup without vegetables, a moderate allowance of animal food, farinaceous substances, and milk. The quantity of food was also restricted to about 22 ounces of solids, in order that the digestive organs might not be burdened with more labour than they were capable of performing, while, at the same time, a sufficient supply of nutriment was furnished to the system; and as his residence in the hospital exposed him to no corporeal tear and wear, this amount of food was calculated to be about enough. He also attempted to limit the quantity of his drink to six pounds, but on several occasions found the discrepancy between his ingesta and egesta so enormous, that there seemed no possibility of explaining it on any other principle than that he had stolen an additional supply of water. This restriction was, therefore, abandoned as impracticable.

When first admitted, he had several purgatives of castor oil and calomel, and his drink was acidulated with aromatic sulphuric acid, and, in order to determine to the skin, he was ordered the warm bath every second night. As he complained much of frontal headache and loss of memory, his head was shaved, and afterwards a blister was applied to the nape of the neck. He was also ordered, on the 31st of January, the following combination of gentian and opium :—

℞ Infus. Gentian, ℔iss.; Tinct. Opii, ʒss. M. Cap. ℥iss.; misturæ sexta quaque hora.

As the urine was still about 18 pounds, and as very little impression had been made on the disease, the quantity of laudanum in the mixture was increased to an ounce, and a blister applied to the nape of the neck on the 6th February. From this time the urine began to diminish in quantity; his headache was less, his strength was greater, his thirst diminished, and his tongue was pretty clean; but his bowels required the regular use of the colocynth pill. He was discharged on the 15th March, nearly cured, his urine being about 90 ounces of sp. gr. 1011, having a very urinous odour; but it is not at all improbable that the disease will return if he be again exposed to the irregularities of his avocation.

CASE II. — Janet Chisholm, admitted 22d November, 1839, æt. 27, vagrant, of ordinary habit of body. This patient was admitted chiefly on account of a scabious eruption, which assumed the papular form on all parts of the body, except the hands, where it was pustular. This eruption had existed for about six weeks, was somewhat difficult to cure, but was ultimately eradicated by the external employment of the bichloride of mercury. In addition to this disease it was discovered that she had been passing for the last eighteen months upwards of 20 pounds of urine daily; that she had been under treatment in one or two hospitals for this disease, without much benefit; and that it had succeeded a diarrhœal or dysenteric affection, under which she laboured for some time.

This seems to be a case of hydruria; for the urine differs not materially from the natural standard, except in the increase of quantity and diminution of solid extract. The quantity of urine has varied from 20 to 30 pounds, and, on one or two occasions, it amounted to 33 pounds. Its sp. gr. is generally about 1003, sometimes 1002; it is nearly as colourless and transparent as water, has a very slight urinous odour, but scarcely any saline or other taste. It produces no effect on litmus paper, does not deposit any sediment when kept for several days, but becomes slightly ammoniacal. 1000 grains sp. gr. 1003 were evaporated to dryness, and left 2·6 grains of solid extract; of this 1·2 were dissolved in three successive portions of alcohol. The urine of this patient, therefore, contains a little less than the half of the usual quantity of solid extract; for by calculation 24 pounds, the daily quantity, contain nearly 360 grains of solid matter. The urea, however, seems to exist in about the normal proportion to the other constituents. We were a little surprised at this deficiency of solid matter in the urine, and took the precaution of procuring some, under circumstances where no deception would be practised. When its sp. gr. was taken, it was found to be 1000; but this was, no doubt, owing to its temperature. The quantity of extract was also found increased to 3·5 grains in 1000 of urine, when the sp. gr. was 1605 on one particular day. The urine was not altered in colour by nitric acid, nor was any deposit produced; but a purplish tint was caused by the addition of iodic acid and starch, indicating the presence of uric acid, even in the very small proportion in which it must have existed in this instance. As far, then, as the constitution of the urine is concerned, there appears to be nothing more abnormal than an increase of its watery and a deficiency of its solid contents. She has, however, dyspeptic symptoms conjoined with these, of rather an obstinate character, though not apparently accompanied with any danger, viz., dry and furred tongue, voracious appetite, insatiable thirst, constipation, tumid abdomen; her skin, however, is not harsh or dry, nor is she emaciated, or very weak, as in diabetes mellitus, and her pulse is nearly natural. The prognosis is, therefore, not unfavourable, as far as regards any speedy termination of her life, although, from the disease having existed for nearly two years, her chances of a complete recovery are considerably diminished; for it is quite evident that the severe dyspeptic symptoms, the want of rest, the immense additional labour given to the system, in freeing it from the load of water taken into the stomach, must tend to wear out the strength, or, perhaps, induce some organic disease.

Treatment.—At first when admitted she was treated with the warm bath and creosote, which was carried to the extent of twenty drops in the day; but, as no improvement followed its employment, she was, on 9th December, ordered pills, containing each a quarter of a grain of nitrate of silver, and half of a grain of opium, every fourth hour, which were continued to the 23d January. This treatment was adopted partly with a view of combating the dyspeptic symptoms, and partly as a fair experiment, in this intractable disease. No particular result followed its use, although the urine has never amounted to the same quantity since it was employed, it being 33 pounds on the day she commenced with it, whereas since it has never exceeded 22 pounds. She was then treated for about a week with a morphia draught at bedtime, along with regular laxatives; and on the 30th of January the acid infusion of rennet (formerly noticed) was prescribed, in the quantity of one ounce daily, colocynth pills as a laxative, and 40 drops of the solution of muriate of morphia, mixed with 30 drops of ipecacuanha wine at bedtime. As there was some tenderness in the epigastrium, on the 8th of February a blister was applied to this situation; and on the 28th another to the back for a similar pain. In adopting this practice the constitutional effects of the blisters upon the system generally, particularly upon the kidneys, were kept in view; for cases are recorded by authors where revulsion of this kind has been useful. This patient continued the last mentioned treatment up to the 28th of February, when she was dismissed. The quantity of urine at this period was about 16 pounds, sp. gr. 1004, slightly opalescent, deposited a whitish sediment, had a distinctly urinous odour and taste, and became decidedly ammoniacal on standing a day or two; while in other respects she was greatly improved. It is extremely probable that the mitigation of this disease will only be temporary; and that so soon as she resumes her vagrant habits, her dyspeptic complaints will return, and with them the abnormal secretion of urine.

DIABETES UREOSUS.

James Simpson, æt. 45, labourer, pretty healthy in appearance, was admitted on the 29th of July, 1840, with the following symptoms: viz., great general debility, heat of skin, which is always covered with a clammy moisture, frequent perspirations on the slightest exertion, and great thirst. For the last four and a half months has required to void urine every half hour, and its quantity is about 9 pounds daily. Urine sweetish, but its colour is nearly natural. Is much stronger, and makes less urine than he did at the commencement of complaint; appetite keen, countenance good, pulse moderate, tongue clean, bowels constipated.

August 3rd.—Sp. gr. of urine 1040.

> ℞ P. Nitrat. argent., gr. xii. P. Opii., gr. xviii. ℳ. Fiant pilulæ xviii. Cap. 1. 6ta. q.q. hora. Diet, 12 oz. beef, 12 oz. bread, milk 24 oz.

10th.—Pulse 72, moderate; tongue white, moist; bowels were very constipated for several days, but are now open; thirst and appetite great; urine 3 pounds, of sp. gr. 1940, having a pale yellowish tint, a saline taste, and urinous odour.

14th.—Urine 5 pounds, of sp. gr. 1033, having a urinous odour and saline taste.

16th.—Urine 3 pounds, of sp. gr. 1031, pretty natural in its appearance.

18th.—Urine 8 pounds, of sp. gr. 1034, saline in taste. Diet.—Bread, 24 oz., milk, 30 oz., pease meal, 4 oz.

21st.—Sp. gr. of urine 1027, having a peculiar odour, which is not so urinous as formerly, and a taste slightly sweetish like whey. It is slightly opalescent; the quantity is 5 pounds 8 ounces.

22nd.—Urine 12 pounds, of sp. gr. 1025, having a pale straw colour, peculiar odour, and a wheyish taste.

23rd.—Urine 14 pounds, of sp. gr. 1022, slightly opalescent, and having a pale greenish-yellow tint. Diet. — 16 oz. beef, 8 oz. bread.

26th.—Urine 5 pounds, of sp. gr. 1030, having a brownish-yellow colour and saline taste. Beef to be increased to 24 ounces.

27th—Urine 4 pounds, urinous in taste and odour, and of sp. gr. 1029.

31st.—Urine has a brownish-yellow colour, saline taste, becomes ammoniacal when kept a few hours, and of sp. gr. 1031.

September 2nd.—Urine 4½ pounds, of sp. gr. 1030: when recently passed it reddens litmus paper, has a brownish-yellow colour, an odour resembling beef-tea, a bitterish saline cooling taste, but is not in the slightest degree sweetish.

31st.—Urine 3½ pounds, of sp. gr. 1030, reddens litmus paper, and has a clear brownish-yellow colour.

Remarks.—This patient was two or three days in the hospital before he was subjected to any treatment, because we had not been able to ascertain in a satisfactory manner to what species of diabetes his disease belonged. On tasting his urine, on the day following his admission, no saccharine quality could be discovered; on the contrary it appeared to be slightly saline. Two days afterwards, however, it was distinctly sweetish to the taste. A portion of the non-saccharine urine, passed on the first day after his admission, was evaporated nearly to dryness, and afterwards mixed with nitric acid. It crystallized pretty distinctly, nearly throughout the whole mass. The same urine was also mixed with yeast, but no fermentation occurred. As the urine continued, for about three weeks after his admission, to be characterised by a superabundance of urea, his diet was made almost completely vegetable, in order to test the effects of this species of aliment upon the character of this fluid. From the reports taken after this change was effected, it will be seen that the urine became saccharine, and was quite different in its general physical characters. On adding a small portion of yeast to it fermentation was excited, and the liquor became in a few days distinctly acid to the taste, and reddened pretty strongly litmus paper. Even without the addition of yeast it speedily became decomposed, gave out a very fœtid peculiar odour, and reddened very decidedly litmus paper; but no odour of ammonia was ever noticed during the process. The diet was again changed on the 23rd of August to one composed chiefly of animal food, and the change which this produced was equally remarkable as in the former case, with what was vegetable. The quantity of the urine was diminished in three days to five pounds, and its sp. gr., although increased, was not very great. It was brownish-yellow in colour, having a urinous odour, a bitterish saline taste, did not ferment with yeast, became ammoniacal, turning turmeric paper brown, after being passed twenty-four hours. The urine of this patient, the saccharine as well as the saline, gave with iodic acid in excess, and gelatinous starch, a deep purple-blue colour and precipitate, after being mixed together for about an hour; indicating the presence of uric acid in about the usual proportion. This experiment also tends to prove that the quantity of sugar in the sweet variety of urine was not very great; as it did not, as in the former cases of diabetes mellitus, already noticed, retard the action of the iodic acid much beyond the period observed in operating with a healthy specimen.

Dr. Willis remarks that "ureous urine has been observed to alternate with other morbid states of the same fluid, with the albuminous and saccharine particularly, and also with that in which the phosphatic salts are copiously elaborated. I believe it (he says) to be the common precursor, as recent inquiries have shown it to be the general attendant, of the mellitic diabetes, as well as the state into which that formidable disease passes, under the influence of treatment of a certain kind." We perfectly concur with these views, and have no doubt that our patient's disease would soon be converted into a confirmed diabetes mellitus, were he to live almost solely on vegetable food. There seems to be, therefore, a very faint line of separation between these two diseases; indeed the facts connected with their history seem rather to prove that they are only modifications of one another, and that the same morbid function which generates sugar in excess, has a similar effect in causing an excessive secretion of urea. The ureous diabetes, however, is a much less formidable form of the disease than the saccharine, and we think it is highly probable that its fatal or injurious effects might, for a long period, be protracted, by a careful attention to the diet and regimen, so as to prevent it from assuming the mellitic character. The history of the foregoing case proves decidedly that a diet composed chiefly of vegetable substances would have rendered it one of a decided mellitic character, and proves also the species of aliment is of more importance in the treatment than medicine, for the same formulæ was employed during this period. We have not a sufficiently extensive series of facts to support the opinion that ureous urine generally precedes the diabetic form; but it is a subject well worthy of investigation by experiment and observation, for if such were the case, diabetes mellitus might often be rendered a less formidable disease than it is at present.

ON THE

DISEASES OF CHILDREN.

By Dr. Joseph Merdes,
Physician to the Casa Pia.

The diseases of children treated by Dr. Merdes belong chiefly to the period between the cutting of the teeth and puberty. No children are received into the Casa Pia before they have cut their teeth; and among 1200 there are barely 400 who have attained puberty.

State of the sick ward from Jan. 1, 1837, to the end of the year.

Remaining from the previous year 50, admissions 440, discharged 465, remained 8, died 17; mortality 1 in 28.

In the sick ward of the orphans, remained from the previous year 15, admissions 213, discharged 201, remained 14, died 13; mortality 1 in 17.

The most frequent diseases were, bronchitis epidemica (influenza) 55, measles 180, scrofula, scrofulous ophthalmia, &c. 50, diseases of the skin, 120.

Phthisis caused a third of the deaths; four cases of meningitis also terminated fatally; three children died of scrofulous caries.

Remarks. — Scrofula demands the greatest attention. It is most frequent and most violent in girls; but with proper attention to health it is curable, and not infectious. In the present situation of the Casa Pia it has become more frequent and worse than in the former one, because the present one is cold and damp; damp cold favours scrofula, which is, consequently, common in those countries where such an atmosphere predominates. Children who are transplanted to a colder climate, as from India to England, or the Brazils to France, often become scrofulous.

Another cause of scrofula, first pointed out by Baudelocque*, is bad air, poor in oxygen, and overstocked with carbonic acid, which checks the formation of blood, and makes it imperfect. In the Casa Pia, where from want of room the children are crowded together in long and narrow bed-rooms, which in the long winter nights are almost hermetically closed, this cause is present in the most intense degree, and has an important share in the frequency of scrofula in the institution. As to remedies, Dr. Merdes remarks that the most celebrated antiscrofulous medicines, iodine not excepted, are of weak and doubtful effect, when, as in the Casa Pia, the conditions requisite to health are wanting.

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* The German translator puts a (?) to the assertion that this fact was first pointed out by Baudelocque.—*Translator's Note.*

The chief cause of mortality among the children is phthisis scrofulosa, which, as dissections show, commonly begins in the bronchial glands, which are usually found much swelled, and changed into tuberculous masses. Several die every year of meningitis and encephalitis, which are so common and severe among children. Therapeutic results by no means correspond to the improved view of the essence of those diseases which has been attained in our day. White and Fothergill considered acute meningitis as incurable; and, according to Dr. Merdes' experience, the physician must necessarily lose two-thirds of such cases. Many children are carried off every year in the Casa Pia by stomatitis gangrenosa (stomacace maligna); but, from the greater salubrity of the place, it is not so common as formerly. —*Zeitschrift für die gesammte Medicin*, from the *Jornal da Sociedade das Sciencias Medicas de Lisboa.*

CASE OF
ABSCESS OF THE KIDNEY
MAKING ITS WAY THROUGH THE LIVER AND THE LUNG.
BY DR. SPORER.

P. B. æt. 19 years, a tailor, was attacked, without any evident cause, with pain in the lumbar region, accompanied by shivering, and followed by increased heat. On the 13th of February, the fifteenth day of his illness, he came to the hospital in the following state: — He had a dry cough, anorexia, heat of the skin, and thirst; his tongue was covered with a yellow coat, and was dry at the tip; his skin was pale, hot, and dry; his pulse 90, rather tense; his stools natural, and his urine highly coloured and heating. On lying on his back he felt a sensation of tension, and of an uncomfortable pressure; when on his right side he complained of a dull pain in his right hypochondrium, and his cough became more frequent. His physician, believing he had rheumatism and gastro-catarrhal fever, prescribed nitre and tartarized antimony.

On the 15th and 16th his cough was more frequent; his pulse 100. On the 17th he had severe pain in inspiration at the inferior angle of the right scapula; he was ordered to be cupped there, and to take calomel with other mild medicines. On the 18th he had constant fever, and the pain was more severe in the hypochondrium and in right lumbar region. The application of a blister was followed by a slight improvement; the pain became less, the expectoration easier, and the cough less frequent; the skin was burning hot and dry; the urine scanty. On coughing forcibly, or taking a deep inspiration, a gurgling sound was heard, extending from the inferior angle of the right scapula to the hypochondrium of the same side. He was now also becoming rapidly and generally dropsical.

On the 27th the patient expectorated at short intervals, and after some severe paroxysms of coughing, nearly a kilogramme and a half of genuine, thick, greenish-grey pus, and immediately after he had an abundant perspiration. For two days after this he seemed rather better, but then he became much weaker, and he died exhausted, and with great difficulty of breathing, on the 4th of March.

At the examination, thirty hours after death, the pleuræ, heart, pericardium, left lung, and upper lobe of the right lung, were found healthy. The lower lobe of the right lung was adherent to the costal pleura at the back, and to the pleura covering the diaphragm. On endeavouring to detach it at the latter part, a rent was made, which permitted the escape of a little pus. On opening the abdomen to raise the part of the diaphragm which was adherent to the lung, the right lobe of the liver was also found closely adherent to the under surface of the diaphragm, and lower down, to the transverse colon, and by plastic exudations extending along the ascending colon to the right kidney, with which it formed one entire mass. The right kidney, enveloped, as it were, in a gelatinous mass, adhered to the vertebral column and to the ribs by means of a fleshy substance, and resembled, in some measure, a membranous bladder of the size of a large fist, which was filled by well-formed yellow pus. It was only at that part of the kidney which lay by the sides of the bodies of the vertebræ that any trace of cortical substance could be discerned. The left kidney, the left lobe of the liver, the gall bladder, the pancreas, the spleen, and the intestines, with the exception of the ascending and transverse colon, were in a normal condition.

It was evident that this disease had commenced by an inflammation of the right kidney; that then suppuration took place, and extended along the ascending colon to the liver, and made its way through the diaphragm to the lower lobe of the right lung. The pus, therefore, had ascended, contrary to all physical laws, into the bronchial tubes, from which it was discharged by expectoration.—*Fricke und Oppenheim's Zeitschrift*, and *Gazette Medicale*, Aug. 8, 1840.

SUBCUTANEOUS SECTION OF FORTY-TWO MUSCLES, TENDONS, AND LIGAMENTS,

PERFORMED ON THE SAME DAY IN THE SAME INDIVIDUAL,

By M. Jules Guerin.

I have the honour to communicate to the Academy (of Sciences of Paris) an account of an operation, which, by its character of generality, and by its immediate results, seems to me fitted to determine in a definite manner the value of a principle which I have endeavoured to establish in my memoir on subcutaneous wounds; namely, that wounds made under the skin, and kept from the contact of the air, are secure from all suppurative inflammation.

On the 25th of this month, at 5 in the evening, I performed on a young man aged 22, the subcutaneous section of forty-two muscles, tendons, and ligaments, consecutively, to remedy a series of articular deformities caused by the active retraction of those muscles and ligaments. This series of operations required twenty-eight openings in the skin. The following are the muscles, tendons, and ligaments, that were divided:—

In the trunk—The pectoralis major.

At each elbow—The biceps, the pronator teres, the flexor sublimis, the palmaris longus.

In each fore-arm—the tendon of the flexor carpi ulnaris, those of the palmaris longus and brevis, that of the abductor pollicis.

At each knee—the sartorius, the biceps, the semi-membranosus, the semi-tendinosus, fascia lata, external lateral ligament.

At each foot—the tendo achillis, the tibialis anticus, the extensor communis, the extensor longus pollicis, the peroneus longus.

The following were the immediate results of the operations: the patient had felt but slight pain and fatigue; he made no complaint whilst they were being performed, and they occupied an hour. An hour after he was in a calm sleep. The night and the day following were passed tranquilly. No inflammation supervened; and on the third day the twenty-eight wounds were completely cicatrized. To-day, the fifth after the operations, the divided parts of the skin have had all their dressings removed, and the traces of the cicatrices are scarcely discernible. – *Gazette Medicale*, Sept. 5, 1840.

METHOD OF RESOLVING *ENGORGEMENTS* OF THE SPLEEN,

By M. Voisin, of Limoges.

Having learned from the *Gazette Médicale* the attempts which have been made by several of its contributors to resolve the swelling of the spleen which follows ague, I have to propose a very simple remedy, by means of which I have not only cured eight or ten of these swellings, but also the ascites and straw-coloured complexion which often follows them. In three or four of these cases, the diseased organ occupied about two-thirds of the capacity of the left half of the abdomen. This remedy, which I do not call a new one, is merely an emplastrum Vigo cum mercurio,* with which 120 or 160 grains of sulphate of quinine are incorporated, and which is placed permanently on the splenic region. It must be renewed when the substances which compose it are exhausted, that is to say every forty or fifty days.

The following are the advanaages of this remedy:—

1. It spares the patient the unpleasantness of taking sulphate of quinine by the mouth.
2. There is absorption, and consequently continuous action of the remedy.
3. This absorption and action take place in the very neighbourhood of the diseased organ.
4. In consequence of these effects continuing, the paroxysms do not return.

I have always found this treatment sufficient, without any other. What is its mean duration? It would be difficult to estimate it from so limited a number of facts. The length of the treatment varies according to the greater or less swelling of the spleen, the age of the patient, and the absorbing power of his skin; but two or three months are generally sufficient.

I will not quit this subject without mentioning that when taken *in the dose of sulphate of quinine*, the deuto-sulphate of iron is equally efficacious in ordinary intermittents. My underlining some of the previous words was intended to mark the error of certain pharmacologists, who, from erroneously dreading the energy of this remedy, prescribe it in insignificant doses.—*Gazette Médicale*, September 12, 1840.

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* The "emplâtre mercuriel," or "emplâtre de Vigo cum mercurio" of the French Codex, is made of common plaster, bees' wax, rosin, ammoniacum, bdellium, olibanum, myrrh, saffron, mercury, turpentine, liquid storax, and volatile oil of lavender.—*Translator's Note.*

CASE OF VARICOSE ANEURISM TERMINATING FATALLY.

A PEASANT, aged 40, was admitted into hospital on the 9th of December, with a varicose aneurism at the bend of the left arm, which had appeared a few days after venesection. A compressive bandage was applied for twenty-two days round the whole arm without advantage. On the first of January the brachial artery was tied according to Anel's method, and the operation was followed by the ordinary symptoms until the fifth day. At this period gastric symptoms set in; and the arm swelled to such a degree, that the aneurismal tumor, which was as large as a hen's egg, could no longer be distinguished. The wound began to suppurate copiously; and an obstinate diarrhoea terminated the sufferings of the patient on the 21st of January.

Dissection.—The brain, lungs, and intestines, showed traces of inflammation and accumulation of purulent mucus. The tied artery had suppurated, both above and below the ligature. The coagulum was of a conic shape; and close to it, as is usual in such cases, lay the sac of the aneurism. When opened, it displayed a double cavity, which appeared to have been formed at the expense of the cellular substance situated between the artery and the vein.—*Zeitschrift für die gesammte Medicin*, from the *Jornal da Sociedade das Sciencias medicas de Lisboa.*

BOTH TO BLAME.

'TIS a pleasant and witty saying that Plutarch says Democritus was wont to have, viz. "that if the body and soul were to sue one another for damages, 'twould be a doubtful question whether the landlord or the guest were most faulty."

And indeed we seldom find a just moderation between 'em; for if we are too intent upon strengthening the body, by cramming that, we humble the soul to the ground; and if, on the other hand, we bend all our force upon the improvement and ornaments of the mind, the body moulders and decays. *Ramazzini.* London translation of 1705.

BRITISH MEDICAL ASSOCIATION.

THE General Meeting of this Association took place at Exeter Hall on the 8th inst. We regret that, owing to the ticket sent to us having reached us too late, we were unable to send a reporter of our own, but we subjoin the account of the meeting which appeared in the Times of next day.

Last night a crowded meeting of the members of the medical profession took place in the director's room, in Exeter-hall, Dr Webster, the president. in the chair, who explained to the meeting the objects which the Medical Reform Association had in view, and stated the objections with which the medical bills of Messrs. Warburton and Hawes were fraught. The heads of the bill which the Reform Medical Council deemed the most salutary to the public, and the most satisfactory to the profession, are—1. That all the legally qualified members of the medical profession be united into one body, to be named the British Faculty of Medicine. 2. That this faculty should have the power to elect by ballot a governing body, to be named the General Medical Senate, consisting of a senate in London, Edinburgh, and Dublin, to be elected by the respective members of the faculty in each country. 3. That these senates should be subject to the same regulations, and that their members, either in whole or in part, should assemble at fixed times to frame laws for the protection of the faculty. 4. That this general senate should alone have power to frame laws for the regulation of the faculty, for defending the rights and privileges of the members, for superintending the medical police of the country, and for advising Her Majesty's Government on all subjects connected with the public health. 5. That the members of the present existing corporations be requested to take part in the formation of the first medical senate. 6. That all future candidates for medical practice be examined by a board elected as the General Medical Senate shall suggest. 7. That an uniform high educational qualification be exacted from each candidate, to be tested by public examination. 8. That all candidates admitted shall receive the same title, enjoy equal rights and privileges, and alone have the power of exercising the healing art in the British empire, subject to certain limitations. 9. That no medical practitioner be permitted to sell drugs, or to compound any other than his own prescriptions, except in rural districts. 10. That those practitioners who act as general practitioners shall be allowed to charge for their attendance, in addition to the cost of the medicines. 11. That all chemists and druggists, compounders or sellers of medicines (henceforward to be styled apothecaries), shall undergo an examination before a board of the General Senate, and be licensed by that body. 12. That a continuous register be kept of those now practising, or hereafter to practise, the healing art; as also of chymists, druggists, compounder and sellers of medicines; and that such registers shall be deemed sufficient evidence of qualification. The secretary read the report of the year, when the meeting adjourned.

OPERATION FOR OVARIAN DROPSY.

To the Editor of the Medical Gazette.

SIR,

MR. LISTON requests me to state, with reference to the case of ovarian cyst published in the last number, "that he fully and earnestly dissuaded the patient against submitting to the extirpation of the cyst."

I am, sir,
Your obedient servant,
B. PHILLIPS.

Wimpole Street, Oct. 12, 1840.

NEW TROCAR.

To the Editor of the Medical Gazette.

SIR,

THE number of the Medico-Chirurgical Review, just published, contains an extract from your journal relative to an instrument I proposed to the pupils of Mercer's Hospital, to supersede the present trocar and canula. The writer of the article in the Review will find, on referring to Sir Astley Cooper's lectures on tapping, that the trocar and canula are not such eligible instruments as he supposes. Any contrivance, whereby the apparatus can be rendered more convenient and easily kept in repair, and which will attain the twofold object of dispensing with the edged canula (which wounded the mesentery, and caused death, in one of the cases described by Sir A. Cooper) and of preventing a speculative thrust where the fluid is deeply seated in encysted dropsy, is an improvement on existing practice. At the same time, it was rather my intention to direct the attention of ingenious instrument-makers to the subject, than to propose a plan myself.—I remain, sir,

Your obedient servant,
CHARLES LENDRICK.

Dublin, October 3rd, 1840.

BOOKS RECEIVED FOR REVIEW.

Professor Liebig's Organic Chemistry.

Dr. Markham on the Surgical Practice of Paris.

Dr. Dick on Derangements of the Organs of Digestion.

Dr. Hodgkin's Lectures on the Morbid Anatomy of the Serous and Mucous Membranes, Vol. II.

Dr. Craigie's Elements of the Practice of Physic, Vol. II.

Dr. Mercer's Probationary Essay on the Special Pathology of the Accessory Organs of Hearing.

Mr. Howship on the Discrimination and Appearances of Surgical Disease.

Mr. Pereira's Elements of Materia Medica, Part II.

Dr. Prout on Stomach and Urinary Diseases. 3d Edition, greatly enlarged.

Mr. Spooner on the Foot of the Horse.

ROYAL COLLEGE OF SURGEONS.

LIST OF GENTLEMEN ADMITTED MEMBERS.

Friday, October 2, 1840.

John Wrixon.—Heynes Roger Hardwicke.—Richard De Courcy Peele.—Joseph Samuel Waterhouse.—George Augustus Ibbotson.—John Hay Call Paul.—George Harris Strange.—Samuel Marsden Hallsworth.—Alexander Adam Trout.

Friday, October 9, 1840.

F. Gornup.—A. G. Roper.—J. Graham.—J. Parke.—W. H. Reynolds.—G. S. Cotter.—H. Hare.—W. J. B. French.—E. S. White.

APOTHECARIES' HALL.

LIST OF GENTLEMEN WHO HAVE RECEIVED CERTIFICATES.

Thursday, Sept. 17, 1840.

H. J. Calthrop, Isleham, Cambridgeshire.—E. Harley, Spalding, Lincolnshire.—C. C. E. Hopkins, North Shields.—G. H. L. Rickards, Wortley, Leeds, Yorkshire.—B. W. Miklethwait, Leeds, Yorkshire.—F. W. Towle, Borromash, Derbyshire.—T. W. Barrow.—T. S. Ralph.

Thursday, Sept. 24, 1840.

J. B. Mawer, Swineshead, Lincoln.—H. P. Buckle.—W. C. Williamson, Manchester.—C. Highett, 17, North Street, Bristol.—J. Oldham.

Thursday, October, 1, 1840.

R. B. East, London.—J. Roberts, Golcar Hill, Yorkshire.—H. Ellis, Pickworth, Lincolnshire.—J. Rowland, Wrexham.—A. J. Wright, Faversham, Kent.—F. Bokenham, Godalming, Surrey.—E. A. Rawlinson, Chadlington House, Oxon.

Thursday, October, 8, 1840.

H. Symes, Bridgewater.—F. Foster, Taunton.—H. Pavey, Reading.—C. Coward, Devizes.—F. R. Spackman, Lutterworth.—J. Glover, Aldborough, Yorkshire.—J. S. Waterhouse, Dewsbury.—J. F. Pennington.—G. Stockil, Doncaster.—J. W. Hiron, Warwick.—H. A. Grime, Blackburn.

METEOROLOGICAL JOURNAL.

Kept at EDMONTON, *Latitude* 51° 37′ 32″ *N. Longitude* 0° 3′ 51″ *W. of Greenwich.*

Oct.	THERMOMETER.		BAROMETER.	
Wednesday 7	from 33 to	53	30·01 to	30·06
Thursday . 8	28·5	53	30·14	30·18
Friday . . 9	34	55	30·20	30·21
Saturday . 10	31	58	30·22	30·24
Sunday . . 11	37	60	30·30	30·37
Monday . . 12	39	58	30·47	30·50
Tuesday . 13	32	53	30·48	30·41

Wind W. on the 7th; N.W. and W. on the 8th; N. on the 9th and three following days; S.E. and S.W. on the 13th.

Except the morning of the 7th, remarkably clear.

CHARLES HENRY ADAMS.

WILSON & OGILVY, 57, Skinner Street, London.

THE
LONDON MEDICAL GAZETTE,
BEING A
WEEKLY JOURNAL
OF
Medicine and the Collateral Sciences.

FRIDAY, OCTOBER 23, 1840.

LECTURES ON THE PRINCIPLES AND PRACTICE OF PHYSIC,

Delivered at King's College, London,

By Dr. Watson.

Lecture V.

Different modes of dying. Pathology of sudden death. Death by anæmia, its course, phænomena, and anatomical characters. Death by asthenia, its course, phænomena, and anatomical characters. Syncope. Death by inanition. Death by apnœa: Death by coma: their course, and phænomena, and the anatomical characters common to both. Application of the principles obtained from the investigation of the phænomena of sudden death, in elucidating the symptoms and tendencies of disease.

I propose to devote the present lecture to the following inquiry:—wherefore it is, and how it is, that some of the corporeal changes which we have been considering, or the diseased conditions connected with those changes, come to be incompatible with the farther continuance of life? how is it that they put an end to the working of the living animal machine? why the machine should not continue to work, though, perhaps, imperfectly, *notwithstanding* such changes?

When our watches stop, we take them to a watchmaker to ascertain why they have stopped. The watchmaker knows that there are various ways in which the movements of the instrument may have been arrested. The main spring may have broken: or the little chain that connects the barrel and the fusee may have snapped: or the teeth of some of the wheels may have become inextricably entangled: or the watch may have ceased to go (as the saying is) simply because it has not been wound up. Now the examination which the watchmaker undertakes in respect to the watch, I am desirous of making in respect to the human body. I am going to inquire into the several processes and modes of dying—the steps, or ways, by which the vital functions of the body are extinguished. A very little experience in the sick chamber, or in the wards of a hospital, will suffice to teach you that, although all men must die, all do not die in the same manner. In one instance the thread of existence is suddenly snapped; the passage from life, and apparent health perhaps, to the condition of a corpse, is made in a moment: in another the process of dissolution is slow and tedious, and we scarcely know the precise instant in which the solemn change is completed. One man retains possession of his intellect up to his latest breath: another lies unconscious, and insensible to all outward impressions, for hours or days before the struggle is over.

We seek to ascertain the laws and mechanism of these mysterious differences.

The inquiry is not one of merely curious interest, but has a direct bearing upon the proper treatment of disease. It will teach us what we have to guard against, what we must strive to avert, in different cases. In speaking of particular diseases, I shall constantly refer to the facts and reasonings which I am now about to lay before you.

Conditions of life.—In pursuing this inquiry, we need not go into any deep physiological disquisition respecting the conditions that are essential to life. It is sufficient for our purpose to remark that life is inseparably connected with the continued circulation of the blood. So long as the circulation goes on, life, organic life at least, remains. When the blood no longer circulates, life is presently extinct: and our investigation of the different modes of dying resolves itself into an investigation of the different ways in which the circulation of the blood may be brought to a stand.

Observe the ample provision that is made, in the construction of the body, for carrying on and maintaining this essential function. First, there is an extensive hydraulic apparatus distributed throughout the frame, and consisting of the heart and other blood-vessels. Next, there is a large pneumatic machine, forming a considerable part of the whole body, and composed of the lungs, and the case in which they are lodged. Lastly, the power by which this machine is to be worked and regulated is vested in the nervous system. Each of these systems must continue in action, or the circulation will stop, and life will come to an end. The functions they respectively perform are, consequently, called vital functions: and their main organs—the heart, the lungs, the brain (by which I understand the intercranial nervous mass)—are denominated vital organs. The functions of any one of the three being arrested, the functions of the other two are also speedily extinguished. But the phænomena of dying vary remarkably according as the interruption begins in the one or the other organ. Hence Bichat, who, in his *Recherches sur la vie et la mort*, laid the foundation of the distinctions I am about to describe, spoke of death beginning at the *head*, death beginning at the *heart*, and death beginning at the *lungs*. This nomenclature is, however, unsatisfactory and insufficient, as you will presently perceive.

That the heart may continue to propel the current of the blood, two things are necessary: first, a certain power or faculty of contraction; and, secondly, a sufficient quantity of blood in its chambers, to be moved, and also to stimulate them to contract. If this, the proper stimulus to the internal surfaces of the heart, be withheld, or much deficient, it will soon cease to beat. There are plainly, therefore, two ways in which death might be said to begin at the heart; and these require to be distinguished.

The respiration is entirely subservient to the circulation of the blood. The two organs, the heart and lungs, respond intimately to each other. The whole of the blood is sent by the right heart to the lungs, simply that it may there be submitted to the chemical action of the atmosphere. The respiratory apparatus is added to the body for the sole purpose of thus repeatedly ventilating the blood.

To this purpose also (setting aside all accidental impediments) two things are requisite: first, circumfused air to enter and depart at short intervals; and, secondly, alternating movements of the chest to cause its entrance and exit.

Now these movements, although they admit of being regulated by the will, are essentially involuntary. The ordinary acts of respiration depend upon a certain condition of the medulla oblongata. If this condition fails, the mechanical part of the respiratory process, and, consequently, the chemical part also, ceases.

The respiration hangs, therefore, directly upon the nervous system.

On the other hand, the action of the heart is not directly or necessarily dependent upon any constant nervous influence conveyed to it. The circulation goes on in an acephalous fœtus; it may be kept up, by maintaining artificial respiration, in a decapitated animal: nay, even when both brain and spinal cord have been abstracted from the body.

But though the nervous influence is not necessary to the movements of the heart—farther than as it is necessary to the respiration, and to the introduction of nutriment—it has been clearly ascertained that very sudden and extensive injury or shock to the nervous system may instantly paralyse the heart, and so stop its action.

There are certain states, then, of the brain and nerves, which, without directly affecting the heart, bring the motions of respiration to a pause: and there are certain states of the brain and nerves which act directly on the heart and arrest its play. That is, there are two different ways in which death might be said to begin at the head.

Hence, I say, the nomenclature employed by Bichat is defective and inaccurate.

Pathology of sudden death.—In order to see clearly the steps by which the circulation, and with it life, finally terminates, in the various forms of dying, we must study the problem under its simplest forms. We must examine the cases in which the vital functions are, each in their turn, *suddenly* stopped, by some known cause, operating upon this or that vital organ. We must take advantage of the experiment (if I may so call it) which is performed before our eyes whenever a healthy man is cut off at once by external violence, or by poison, acting directly upon a particular organ or system of organs. The inquiry might be assisted, and, indeed, it has been mainly carried on, by experiments made upon living animals of a similar conformation with man. But the pathology of sudden death is happily now too well understood to require any farther recurrence to that painful mode of "interrogating nature."

Death, as it takes place in disease, is usually complicated. Many parts are affected, and different functions languish, and various disturbing causes are in operation, at the same time. Occasionally, however, the process of dissolution is as simple and obvious as in death produced by violence; and in most cases some primary and predominant derangement may be traced of this or that vital function; and a tendency is more or less clearly manifest to one or the other of the modes of dying, which we may now proceed to consider in succession.

Death by anæmia.—And first let us examine that form of death which is caused by a want of the due supply of blood to the heart. This is called, with much propriety, *death by anæmia.*

The best examples of death taking place in this way are those in which it is the consequence of sudden and profuse hæmorrhage. The circulation fails, not because the heart has lost its power of contraction, but because blood does not arrive in its chambers in sufficient quantity.

We assure ourselves of this in two ways. In the first place, when the body of an animal is examined immediately after death from sudden and copious loss of blood, the heart is not found dilated, and full of blood, as it would be if it had ceased to act from a want of power to contract upon its contents; but it is found empty, or nearly so, and *contracted.* Secondly, this conclusion is confirmed by the reverse experiment: by the effect, I mean, of the *transfusion* of blood. It is a fact well ascertained, first by experiments made upon animals, and afterwards by most happy trials upon the human subject, that in cases of apparent death from violent hæmorrhage the suspended functions may be restored by conveying a timely supply of blood into the vessels of the seemingly dead animal from the veins of a living animal of the same species. Now it is quite clear that this introduction of fresh blood could be of no avail in a case where the heart was unable to act upon the blood which had reached it.

The phænomena which attend this mode of dying are paleness of the countenance and lips, cold sweats, dimness of vision, dilated pupils, vertigo, a slow and weak pulse, and speedy insensibility. With these symptoms are frequently conjoined nausea, and even vomiting, restlessness and tossing of the limbs, transient delirium: the breathing is irregular, sighing, and, at last, gasping; and convulsions generally occur, and are once or twice repeated, before the scene closes.

It is thus that women often die, in whom "flooding" happens after childbirth. Sometimes the sudden bursting of an aneurism occasions this form of death. It is common on the field of battle, and in accidental injuries whereby large blood-vessels are wounded. Internal hæmorrhage, depending upon diseases to be hereafter described, may also prove fatal in the same manner.

Death by asthenia.—This, then, is one form of death beginning at the heart. Another form, the converse of this, but spoken of also as death beginning at the heart, is that in which there is no deficiency of the proper stimulus to the heart's action, but a total failure of contractile power in that organ. This is well denominated death by *asthenia.*

Death occurring in this way is not uncommon. The effects of some kinds of poison furnish a good illustration of it. There are certain substances which, applied to some part or other of the body, speedily extinguish life: and when, after their fatal operation, the thorax is opened, each chamber of the heart is found to be filled with its proper stimulus, upon which it has been unable to contract.

This was distinctly made out by Sir Benjamin Brodie, in his able and scientific investigation of the effects of different poisons. You may read with advantage his papers on this subject in the Philosophical Transactions for 1811 and 1812. He ascertained, upon examining the chest after death occasioned by the *upas antiar*, that the heart was not empty, but full, there being purple blood in its right, and scarlet blood in its left cavities. These are the anatomical characters of this kind of death; and they prove that the action of the heart does not cease from a defect of stimulus, but from a loss of its contractile power.

Syncope.—The state of suspended animation common to both these forms of dying—(the ultimate external phænomena being nearly the same in each, and the result in each being the simple failure of the circulation)—is often expressed by the term *syncope.*

Besides the essential distinctions between them already mentioned, there is this farther point of difference. In death by anæmia, the suspension of the functions of the nervous system arises from a lack of the blood which should be sent to the brain from the *heart.* Hence the well-known effect of mere position. Syncope is sooner produced by venesection when the person bled is sitting up than when he is recumbent: and the first remedy for the fainting state is to lay the patient flat upon the ground, or even to place his head a little lower than the trunk of his body. In the one posture the current of the blood towards the head is impeded by the force of gravity; in the other it is not. In sudden death by asthenia this order is reversed; the *nervous system* is the part first affected, and through it, consecutively, the heart. This appears from the fact that sudden death by asthenia is sometimes produced by causes which we know to act primarily upon and through the nervous system; by strong mental emotion—as intense grief, joy, terror. Cases of fatal concussion, where the brain is jarred by some bodily shock—and death occurring almost instantly from blows on the epigastrium—

are of this kind. Lightning and electricity kill too, when they kill at all, in the same way. And we shall hereafter see that certain varieties of apoplexy, and several other diseased conditions, destroy life by suddenly arresting the contractile power of the heart.

When death by asthenia occurs more slowly, from disease, the phænomena are somewhat different. The pulse becomes very feeble and frequent, and the muscular debility extreme; but the senses are perfect, the hearing is sometimes even painfully acute, and the intellect remains clear to the last. The tendency to death of this form is remarkably manifest in acute inflammation of the peritoneum, in what is called malignant cholera, and in cases of extensive mortification.

Death by inanition.—Akin to this form of dying is that in which the living powers are slowly exhausted by lingering and wasting disorders, as in many cases of phthisis, in diabetes, and in dysentery; or by hæmorrhages moderate in amount, but frequently repeated; or by any other long-continued drain upon the system: the death is partly, however, to be ascribed to a deficient supply of the natural stimulus to the heart's action. The type of these mixed modes of dying is seen in death by *starvation*, which may be considered intermediate between death by anæmia and death by asthenia. Death from inanition can never be sudden. The blood, renewed no longer from without, and fed only by absorption from the system itself, diminishes gradually in quantity, while its quality is probably deteriorated. Gradually also the contractile power of the heart, as well as of the muscles generally, is weakened; and from these combined causes its movements at length cease. Accordingly after death by starvation the heart is not found to be so much contracted, nor so nearly empty, as after death by sudden and copious hæmorrhage.

Certain diseases of the throat or the œsophagus, prohibiting the introduction of food; of the stomach, preventing its retention; of the digestive organs generally, hindering its assimilation, are fatal in this manner.

We have yet to consider how death is produced by the suspension of the respiratory function—in other words, by a want of the due arterialization of the blood.

There are two perfectly distinct modes in which this cause of death may happen; distinct, *i. e.* in regard to the steps of the process, although identical in regard to the ultimate result.

1. When the access of air to the lungs is suddenly denied by some direct obstacle to its entrance;

2. When the muscular actions required for breathing cease in consequence of *insensibility*, caused by disease or injury of the brain.

The first of these two forms of dying is commonly called death by *asphyxia*. The second is conveniently termed death by *coma*. Bichat spoke of them respectively as death beginning at the lungs, and at the head.

Death by apnœa.—It is of much importance to get rid, when we can, of improper names. They are very apt to warp our notions concerning the real nature of the things they are intended to express. This term *asphyxia*, which is in every body's mouth, is very inappropriate, if we look to its etymology, to the kind of death which it has come to denote. It signifies, you know, literally, pulselessness, the want of pulse; and therefore it *might* express any kind of death whatever; or if applied to any particular *mode of dying*, it would seem to belong to that we have just been considering, namely, death beginning at the heart. And you will presently see that it is *peculiarly* inapplicable to all those cases where death results from the nonarterialization of the venous blood. Its current signification has, I am afraid, been too long established by custom, to allow of its being restored to its proper meaning without much confusion. But, at any rate, I can and shall avoid its use, and adopt in preference the generic term *apnœa* (privation of breath) as justly expressive of the mode of death to which the word asphyxia is commonly given by authors. The generic English term is *suffocation*.

The entrance of air into the lungs may be prevented in various ways: by stoppage of the mouth and nostrils *(smothering)*:—by submersion of the same inlets in some liquid *(drowning)*; or in gases which, though not in themselves poisonous, contain no oxygen; such are hydrogen, and azote: by mechanical obstruction of the larynx or trachea from within, as by a morsel of food *(choaking)*, or from without, as by the bowstring, *(strangulation*: both these varieties are included in the term *throttling)*:—by forcible pressure made at once upon the chest and abdomen, preventing all movement of the ribs and of the diaphragm; this happens sometimes to workmen employed in excavating, who are buried, their heads excepted, by the falling of a mass of earth; it was near happening, Dr. Roget tells us, to an athletic black man, of whose body a cast was attempted to be taken by one operation, and in one entire piece, as an academic model. "As soon as the plaster began to set, he felt on a sudden deprived of the power of respiration, and to add to his misfortune, was cut off from the means of expressing his distress. His situation was just perceived in time to save his life;" in this way the victims of Burke and Hare were stifled; and the same immoveable state of the lung-cases is sometimes produced in tetanus, or by the poisonous influence of strychnine, all the respiratory muscles being fixed in rigid spasm:—by paralysis of the same muscles, from injury or disease of the spinal cord above the origin of the nerves that give off the phrenic nerve, and therefore above the origin of the intercostal nerves also; or from section of the phrenic and intercostal nerves:—lastly, by such breaches in the walls of the thorax as admit air freely to the surface of both lungs, and spoil the pneumatic machine, as a pair of bellows is spoiled when deprived of its valve. Of course the same consequences ensue when both pleuræ become filled with liquid of any kind.

Whenever the privation of air is sudden and complete, the following external phenomena present themselves:—Strong but vain contractions occur of all the muscles concerned in breathing, and struggling efforts to respire are made, prompted by that uneasy sensation which every one has experienced who has tried how long he can hold his breath, and which, when unappeased, soon rises to agony: this extreme distress is transient, being almost immediately succeeded by sensations, not unpleasant, of vertigo, and then by loss of consciousness, and convulsions: at length all effort ceases, a few irregular twitchings or tremors of the limbs alone perhaps remaining; the muscles relax, and the sphincters yield: but still the movements of the heart, and even the pulse at the wrist, continue for a short time after all other signs of life are over; there is no *asphyxia* (properly so called) till the very last.

During this process, which does not occupy more than two or three minutes, the face at first becomes flushed and turgid, then livid and purplish, the veins of the head and neck swell, and the eyeballs seem to protrude from their sockets; at length the heart ceases to palpitate, and life is extinct.

The internal changes, which correspond with and cause these outward symptoms, have been carefully studied, and accurately, though slowly and lately, ascertained. They all proceed from the prevention of the chemical alteration naturally produced in the blood, in the capillary vessels of the lungs. The blood, continuing venous, passes at first in considerable quantity through the pulmonary veins, into the left side of the heart, and thence, through the arteries, to all parts of the body. This venous blood is, however, inadequate to sustain, or sufficiently excite, the functions of the parts it thus reaches. In the brain the effect of the unnatural circulation is felt at once; and shewn by the convulsions and insensibility that ensue. The motion of the blood in the pulmonary capillaries is also, from the first, impeded, and its current gradually retarded, until it stagnates altogether; the lungs remaining full, the right chambers of the heart distended, and therefore less capable of contracting. Meanwhile the black blood, flowing more and more tardily and scantily into the left chambers, leads by its unnatural quality, as well as its deficient supply, to feeble contractions; and this side of the heart is comparatively empty.

In this state, even after the heart has ceased to beat, but not *long* after, if the cause which has excluded the air be withdrawn, and fresh air readmitted—in other words, if artificial respiration be instituted—the blood in the pulmonary capillaries undergoes the required change, becomes arterial, begins again to pass onwards, and by degrees the circulation is restored, and the patient saved.

In this mode of death, the circulation is first arrested, and death truly begins, *in the lungs*.

When the carcass of an animal that has thus perished of apnœa is immediately afterwards examined, (so speedy an inspection of the human body being, for obvious reasons, seldom practicable or proper), the left side of the heart is found to contain a small quantity of dark blood, while its right cavities are greatly distended, and the lungs, the cavæ, and the whole venous system, are gorged with blood of the same character. These are, in few words, the anatomical characters of sudden death by apnœa.

The pathology of this mode of dying has, I say, been thoroughly understood only of late. It will not be uninteresting, and may, I think, be useful, to trace briefly the successive steps by which the true explanation has been attained. Haller was of opinion that the quiescence of the lungs, consequent upon the cessation of the alternate movements of the thorax, formed a mechanical impediment to the further transit of blood through them; and that death resulted from obstruction of the circulation *in the lungs*. He was partly right; but he erred in supposing that the stream of blood was arrested absolutely, and at once, and by a mechanical obstacle. Apnœa, with all its peculiar phenomena, occurs, when atmospheric air is excluded, although the lungs continue to play; as in persons who breathe azote or hydrogen gas. It was clearly shewn by Dr. Goodwyn, in his Essay upon the Connexion of Life with Respiration, that the unaerated blood passed through the lungs, and entered the left auricle and ventricle of the heart; but he thought that it went no further. His notion was that arterial blood is the only stimulus which can excite the contraction of the left cavities of the heart, and that when venous blood arrives in them, the organ becomes motionless; and no blood being sent to the brain, the person dies. Had this theory been true, the left chambers would be found full of blood after death (which they are not), and the mode of dying would not have differed essentially from that which we have already considered as death by asthenia. The well-devised experiments of Bichat carried the investigation a step farther, and proved that the unaerated blood not only reached the heart, but was propelled by the contractions of that organ to every part of the body, through the arteries. Having applied a ligature upon the trachea of a living animal, he made a small opening in one of its carotid arteries. Presently the slender stream of blood that issued began to lose its florid tint, and to assume the dark colour of venous blood, but *it continued to flow*, and the afflux of this dark blood upon the brain was marked by convulsions and insensibility. Bichat conceived, therefore, the erroneous belief that the blood underwent *no* obstruction in its passage through the lungs, but that, remaining unpurified and venous, it acted *as a poison* upon every part to which it was carried by the arteries—first upon the nervous system, and ultimately (passing through the coronary arteries) upon the muscular substance of the heart itself. There are, however, two well-known facts, which upon this theory would be inexplicable—the comparative emptiness of the left chambers of the heart, and the restoration of the suspended functions by the timely performance of artificial respiration. The air could never reach and revivify or depurate the venous blood, stagnating in the capillaries of the heart. It was reserved for Dr. Kay to correct the unsound parts of Bichat's doctrine, and to shew that the blood begins to stagnate in the capillaries of the lungs, in consequence of its failing to undergo the change from venous to arterial; and that the movements of the left heart are brought to an end, principally by the deficient supply of blood from the lungs. His experiments tend moreover to prove that venous blood circulating through the arteries has no directly poisonous operation, but is capable, though much less effectually than arterial blood, to support in some degree the irritability of the muscles. A muscle will continue to contract longer when supplied with venous blood by its arteries, than when supplied with no blood at all. Doubtless, in death by apnœa, the movements of the heart are weakened, partly in consequence of the imperfect stimulus afforded by the venous blood that penetrates its substance; but the main cause of the failure of the circulation is the difficulty with which the nonarterialized blood finds its way through the capillaries of the lungs. This theory is consistent with all the phenomena observed. For a detailed account of the experiments and reasonings upon which Dr. Kay's conclusions are founded, I must refer you to his work on Asphyxia.

Sudden death by apnœa is not very often witnessed as the result of disease. It sometimes is caused by a spasmodic closure of the rima glottidis. It is no uncommon consequence of accidents, in which the upper cervical vertebræ are broken or displaced. I have seen several instances of death rapidly produced, with all the symptoms of sudden suffocation, generally in intoxicated persons, in whom the chink of the glottis has been found closely plugged by a fragment of meat, which "had gone the wrong way."

But there are numerous forms of more chronic disease, in which the tendency to death by apnœa is plainly discernible, sometimes for a long while before their fatal termination arrives. And the phenomena are similar in character to those which are noticed when the struggle is short. We hear the patients complain of the "want of breath;" we see how they labour to satisfy this want, when it becomes urgent, by the elevated shoulders, the dilating nostrils, the energetic action of all the muscles that are auxiliary to the respiration; we perceive by the dusky and loaded countenance, the livid lips and ears, and eyelids, that the blood is but imperfectly arterialized. The diminished capability of such blood to support the functions of the brain is made evident by the vertiginous sensations, and the delirious thoughts of the gasping sufferers; and after death we find the same distension of the right chambers of the heart, while the left are nearly empty—the same gorged condition of the pulmonary arteries and venous system generally, which constitute the anatomical characters of this mode of dying. These appearances are even more constantly visible in the dead body, when apnœa has been gradually produced, than after sudden suffocation; simply, I believe, because they are more *permanent*. After sudden death, however caused, the blood seldom coagulates; and the venous turgescence consequent upon rapid apnœa, although great at first, has time to subside and disappear before the body is examined.

In protracted cases, death does not take place purely in the way of apnœa; the heart is weakened, and the nervous influence impaired by the continued circulation of imperfectly arterialized blood; but the symptoms belonging to apnœa are plainly predominant.

When (as is most common) the privation of air is incomplete, and a scanty and sufficient supply is admitted, morbid changes take place in the lungs themselves; the air-tubes and cells become charged with serous fluid, which operates as an additional cause of suffocation. The same phenomenon is observed when the par vagum is divided on both sides.

Death by apnœa in disease is extremely common. It may be produced by any thing which narrows the chink of the glottis, by warts that sometimes grow there, by œdema of the submucous tissue of the larynx, by inflammatory tumefaction of its lining membrane: it may result from the presence of what are called false membranes in the windpipe and bronchi, such as are formed in the croup: it may be the consequence of disease situate in the substance of the lungs themselves, rendering them incapable of receiving the requisite quantity of air; of this we have examples in pneumonia, and in pulmonary apoplexy:—or it may proceed from disorders of the pulmonary mucous membrane, the air passages becoming blocked up with excessive and unnatural secretions, as in bronchitis. Phthisis is sometimes fatal in the way of apnœa; more commonly it tends to death by asthenia. Diseases of the pleuræ attended with effusion, and causing pressure upon the lungs; diseases of the heart and great thoracic blood vessels, affecting the quantity of blood in those organs; even certain abdominal maladies, accompanied by swelling, and thrusting the diaphragm upwards—terminate by the same mode of dissolution.

Death by coma.—Death by *coma*, although common enough, and of much importance to be understood, need not detain us long. Certain morbid states of the brain (it is unnecessary at present to enquire into their nature and origin) produce stupor, more or less profound; the sensibility to outward impressions is destroyed, sometimes wholly and at once, much oftener gradually; the respiration becomes slow, irregular, stertorous; all voluntary attention to the act of breathing is lost, but the instinctive motions continue; the stimulus conveyed by the pulmonary branches of the eighth pair of nerves still excites, though perhaps imperfectly, the reflex power of the medulla oblongata, which sustains the involuntary movements of the thorax. At length this function fails also—the chest ceases to expand—the blood is no longer aerated—and thenceforwards precisely the same internal changes occur as in death by apnœa.

You will observe that the extinction of *organic* life takes place in exactly the same manner in both cases; the difference between the two forms of dying being this—that in death by apnœa, the chemical functions of the lungs cease first, and then the circulation of venous blood through the arteries suspends the sensibility; whereas, in death by coma, the sensibility ceases first, and in consequence of this the movements of the thorax, and the chemical functions of the lungs, cease also. So that the circulation of venous blood through the arteries is in the one case the cause, and in the other the effect, of the cessation of *animal* life.

The causes that destroy the sensibility leave no constant or necessary traces of their operation. The essential anatomical characters of death by coma, and of death by apnœa, are therefore the same.

Death occurring in the way of coma has this peculiar kind of interest belonging to it, that it may sometimes be effectually obviated by a mechanical expedient. The circulation ceases because the actions of respiration cease—and the failure of the acts of respiration arises from a suspension of the nervous power. If it be merely a suspension—if the nervous functions are within the verge of recovery—organic life may be sustained by the performance of artificial respiration, until the insensibility has passed away; and thus the danger to life, which depended on that insensible state, may be escaped.

Many years ago, in the course of those researches to which I have already referred, Sir Benjamin, then Mr. Brodie, was led to think that by continuing the respiration artificially in animals labouring under the influence of narcotic poisons, the heart might be kept in action until the stupefying but transitory effect of the poison upon the brain had gone off. This idea he soon brought to the test of experiment, and the result was such as to justify his ingenious reasoning. He inserted some woorara into a wound which he had made in a young cat. After a certain time the respiration had entirely ceased, and the animal *appeared to be dead*, but the *heart* could be *still felt beating.* The lungs were then artificially inflated about forty times in a minute. The heart continued to beat regularly. When the artificial breathing had been kept up for forty minutes, the pupils of the cat's eyes were observed to contract and dilate upon the increase or diminution of light, but the animal remained perfectly motionless and insensible. At the end of an hour and forty minutes there were slight involuntary contractions of the muscles, and every now and then there was an effort to breathe. At the end of another hour the animal, for the first time, showed some signs of sensibility when roused, and made spontaneous efforts to breathe twenty-two times in a minute. The artificial breathing was therefore now discontinued. She lay, as if in a state of profound sleep, for forty minutes longer, when she suddenly awoke, and began to walk about.

Sir Benjamin Brodie had indeed been anticipated in this happy proposition for recovering persons apparently dead after taking narcotic poison, after submersion, and the like,—although he does not seem to have been aware of it. The experiment had once been tried before, and on the human subject, and with success, though not upon such scientific principles. The case is given by Mr. Whately, in the Medical Observations and Enquiries, vol. vi. A man who had swallowed an immense quantity of solid opium, and who seemed to be dead, was restored by the patient continuance, on the part of his medical attendants, in a process of artificial breathing.

It is seldom that we can hope for success from this expedient in the treatment of disease; simply because, in most cases, the injury of the nervous system, which has produced the insensibility, is irretrievable.

In most forms of apoplexy, and of hydrocephalus, death occurs in the way of coma. Sometimes, however, as I mentioned before, the lesion of the nervous substance is so extensive and sudden, as to operate like a shock, and cause death by asthenia. The tendency to death by coma is also strongly pronounced in sundry affections of the brain, both acute and chronic. These will form subjects for our consideration hereafter.

The several modes of dying, then, in cases of sudden death, are clearly enough made out. Let me briefly sum up the conclusions at which we have arrived. Life cannot be maintained without the circulation of arterial blood: and whenever a person dies, he dies either because *no* blood circulates through his arteries, or because *venous* blood circulates through them.

When it comes to pass that no blood is circulated through the arteries, we say that death occurs in the way of syncope; and this is of two kinds. In the one there is not blood enough received by the left side of the heart to stimulate its chambers to contract, or to be sent onwards by their contraction; in the other, there may be blood enough, but the heart has not sufficient power to contract upon it.

Also there are two ways in which death may be brought about in consequence of the circulation of venous blood through the arteries. In one of these, the first step is the sudden shutting out of air from the lungs; the blood which arrives in those organs is not aerated, or rendered arterial, but circulates again as venous blood, producing a failure of the animal functions, and weakening the muscles, till it finally stagnates in the capillaries of the lungs themselves. In the other, the animal functions are the first to suffer—insensibility occurs—the power which governs the actions of respiration is withheld—the breathing ceases—and organic life is extinguished as in the former case.

I trust you even already perceive that a right understanding of these matters is calculated to throw both light and interest upon our study of the symptoms, and of the tendencies of disease. It will enable us to aim with more precision at fulfilling the indication so often inculcated by Cullen, of "obviating the tendency to death." In this sketch I have merely been able to hint at the important bearings of such views upon our practice. My attention was first called to them by the lectures of my respected instructor, Dr. Alison, who was accustomed to illustrate them by reference to the phenomena of one large class of disorders. All the modes of dying that I have described are apt to take place in *fevers*. Sometimes we have to combat the one, sometimes the other tendency. The disease often proves fatal in the way of coma; this happens principally when the brain has been a good deal affected, when there has been much headache, delirium, and stupor: sometimes, when the lungs have been seriously implicated, life is extinguished in the way of suffocation or apnœa; and occasionally fever seems to terminate fatally in the way of syncope, especially when the stress of the disorder has fallen upon the bowels, when there has been continued diarrhœa, and ulceration of the intestinal glands. Or if death does not occur precisely in these ways, at least it resembles more in different cases, sometimes one form of dying, sometimes another.

It is notorious that very different remedies, and even different plans of treatment, have been strongly recommended, in fever, by different practitioners. One probable reason of this is that one plan has been found the most proper to avert the fatal event in one form of the disease, and one in another. The tendency to a particular mode of death will prevail in, and characterize, a whole epidemic. We shall resume these considerations hereafter: in the meantime the facts we have been reviewing may teach us the danger of applying, with too much confidence, the experience we may have gained of one epidemic to the treatment of another; and the risk we are sometimes liable to, of misjudging, and criticising unjustly, the practice recommended by other physicians, because it does not appear to accord with the results of our own observation.

EXPERIMENTS

ON THE MOTIONS AND SOUNDS OF THE HEART.

BY THE LONDON COMMITTEES OF THE BRITISH ASSOCIATION FOR 1838-39, AND 1839-40.

EXPERIMENTS FOR 1839-40.

[Continued from page 108.]

OBS. IV.—27th. *Subject*—A stout ass three to four weeks old. Heart acted very vigorously until weakened by hæmorrhage, and contiuued to beat with considerable energy for two hours, when it was extracted still contracting. *Phenomena*—Effects of various forms of pressure on the heart. Rhythm of cardiac and arterial pulses. Ventricular systole. Auricular ditto. Sound of auricular systole. Pulsation of cava. Auricular diastole. Spontaneous or incidental variations in cardiac sounds. Protrusion of septum into right ventricle in systole.

Section 1.—A stethoscope loaded with 2 lbs. weight of shot in a bag was placed on the heart before opening the pericardium (as in experiment 3 of last observation), and was raised at each systole with a sudden heave or jerk, and with much force, and subsided immediately on the supervention of diastole, causing a deep depression in the previously convex surface of the ventricle. This experiment was repeated towards the close of the observation, and after the heart had been exposed for an hour and a half, and with like results in all respects.

Section 2.—The pulse of the femoral artery being compared with that of the heart was found to follow the latter by a distinctly perceptible interval, but by one very minute.

Section 3.—To the eye the apex and fundus cordis approximated to each other in systole, and receded in diastole. The motions of those parts coincided, to a great extent, but not entirely, but rather as part of a series of concatenated movements, of which the former part was the profound undulation, hardening, and rounding of the fundus, and the latter part the hardening, shortening, and slight elevation of the apex; between those successive appearances no very distinct intervals; they passed into each other by an undulatory sort of motion commencing at the fundus, and passing with extreme rapidity along the ventricles to the apex.

Section 4.—Threads were passed through the appendices of the auricles, and, being held tense, so as to impede the auricular systole, were felt to be drawn downwards with much energy immediately before the systole of the ventricles, auricular contraction being completed while the ventricles were still developing their systole.

Section 5.—Towards the close of the first hour of observation, and while the heart in its different parts acted with much energy, the auricles were observed, for a time, to contract with a rhythm above double that of the ventricles (owing probably to the irritation excited by passing the needle and thread through the appendices, and pulling at them afterwards); and a sound, to us new, was detected, resembling very much, except in volume, the first or ventricular systolic sound, and accompanying the auricular systole. The sound was short, rapid, obtuse, without any jerking motion, and coincident exactly with the auricular systole, and in number double, or rather more, the sound of the ventricular systole. This sound was found to attend the systole of the right auricle, as well as that of the left, at a time when the action of the latter was too feeble to give sound.

Section 6.—The large pectoral veins, especially the cava, were observed to pulsate with the auricular systole something as the arteries do with the ventricular, but comparatively very feebly: first came the diastole of the vein, and then the systole, and then the pause; and the former followed immediately on the auricular systole; and the latter on the diastole of the auricles, both in the inferior and superior cava: no other motion was noted in the veins.

Section 7.—The diastole of the auricles was a gradual swelling and enlargement of the visible parts of the cavity in all directions, requiring for its completion as much time as several systoles would do, and followed on the instant of the full distension of the appendices by systole of the whole heart—first in the auricles, and then instantly in the ventricles: during its diastole the auricle seemed to the eye to emerge, as it were, from the sinus venosus, and to swell out from a state of collapse, such as suction inwards towards the ventricle might cause, if any such force as suction existed in the heart.

Section 8.—In this, as in every observation, abnormal murmurs were observed at various moments, viz., immediately on the injection of the woorara, and at other times, but especially when pressure was made, whether intentionally or otherwise, over the orifices, external and internal, of the heart. Towards the close of the observation a loud musical sound was detected in the pulmonary artery, with the diastole. At various times, for short spaces, the second sound of the heart was indistinct, or absent, or masked by murmurs without obvious cause in most instances, other than abnormal modes of action from irritation, hæmorrhage, &c. and exclusive of known structural changes. The first or ventricular sound was often modified in various ways, and attended by murmurs, but never was wanting, so long as the heart acted with any energy. Towards the close, however, when the ventricular systole had become slow and gradual from quick and abrupt, the first sound was either very feeble or not distinguishable at all.

Section 9.—The pulmonary artery was cut open, after which the first sound was still heard, but rather obtuse. A finger was then passed into the right ventricle, and the septum was felt to project convexly into the cavity, and in each systolic effort to press against the finger.

Section 10.—Post-mortem. One valve of

the pulmonary orifice was found slightly injured by a puncture made in the course of experiments, in which the parietes cordis were irritated to abnormal action by means of a needle. Wherever the needle penetrated into a cavity of the heart, there a clot was to be found, or, at least, a coloured plug of lymph in the internal opening.

Section 11.—Post-mortem. The ventricles were found to be of the same dimensions on careful examination.

Obs. V. and VI.—July 1st, 1840. In two observations, one on a frog and a second on a rabbit, the following results were obtained:—

Rhythm.—The first contraction after the pause or ventricular diastole was observed in the vena cava, to which immediately succeeded contraction of the sinus, and afterwards, immediately, of the appendix of the auricles, to which latter immediately succeeded the ventricular systole; and the diastole or relaxation of each part succeeded in like order, that of the vein first, then of the auricle, (of which the appendix seemed later in its diastole than the sinus or body), then of the ventricles. Those motions were slower much than in the human subject, somewhere about 50 beats per minute. The series of systoles above mentioned succeeded each other so, that at a little distance they appeared collectively like an undulation commencing at the cava, rather than a series of independent actions.

Systole of ventricle.—In diastole the ventricle was round, full, protuberant, and dark in colour, but on the supervention of systole changed rapidly in shape and colour, from purple becoming pale flesh-colour, like veal, and from round and broad becoming apparently narrow and more conical and depressed, being obviously lessened in all dimensions, but most strikingly in the tranverse.

The action of the heart lasted for an hour or more with great regularity. The auricles acted for some time longer than the ventricle, especially the right auricle. Nearly but not quite at the same instant of time with the vein, the base and then the apex of the auricle were seen to contract, after which (but not so quickly as might have been expected from other observations, owing probably to delay in the establishment of artificial breathing), the ventricles entered into their systole, and the diastole followed in like order: first the venous expansion, next the base and appendix of the auricles, and last of all the ventricle.

Section 2.—Towards the close of the observation the auricles acted much more frequently than the ventricles, and especially the right auricle. In the ventricular systole the apex was thought to move slightly outwards and to the left, or away from the septum or central axis of the heart.

Obs. VI.—In the rabbit the heart did not beat at any time very vigorously or regularly, and ceased altogether after 20 to 25 minutes, although respiration was maintained by the bellows with ease.

The rhythm.—Section 1.—The first motion after the pause or ventricular diastole was observed in the base of the auricles, and on the right side in the expansion of the jugular and subclavian veins, which in the rabbit, as Steno has observed, seems to replace the superior cava: this vessel whose dimensions were very large compared with the heart, and which wound round the root of the heart in its way to the auricle from above downwards, and from left to right, continued to pulsate for some time after the ventricles had ceased, and even after the adjoining auricle had been for some minutes inert.

Obs. VII.—July 2d. A snake of good size poisoned with prussic acid, so as to be insensible. Heart beating very slowly and rather irregularly at first, perhaps 15 to 20 beats per minute only.

Rhythm of motions.—After a long pause first motion observed in sinus of auricle, and then in appendix, being the auricular systole, immediately after which the ventricular systole, but with no complete interval between end of one and beginning of other systole. After the systoles respectively came the diastoles in like order, and then a long pause, equal sometimes to three or four, or more beats.

At each auricular systole a swelling observed in the cava and pulmonary veins, extending some way down from the heart. This appearance resembled a wave of reflux excited by the action of the auricle. It was not observed in any part beyond a point of the vessels on which pressure was made. In the systole the ventricle shrunk concentrically, being shorter and narrower, but also rounder and more oval, than in diastole; the ventricle, which might be called bicornute, being obtusely pointed at either extremity, had either horn or extremity raised slightly in systole, and depressed again as if by gravitation in diastole. The cavities systolized and diastolized still after the observation was completed, or for more than an hour, and more regularly than at first.

July 3d.—The ventricle ceased beating after about 20 hours. The rhythm of the motions of the heart as before. But the reflux wave or diastole of the veins now less distinct, owing probably to the emptiness of the heart. And in lieu of the regurgitation wave marked by a diastole, followed by a systole, and then a pause in the veins, there was observed an opposite order of the motions, viz. 1. Venous systole; 2. Venous diastole; 3. Then pause. Several times the motion of the veins was observed alone, and not preceded by auricular contraction or accompanied by it, as towards the close of other observations auricular contraction had often failed to excite, or be followed by ventricular systole.

Obs. VIII.—July 4th. *Subject*—A donkey nine months old, in good health; pulse being strong in the præcordia, about 70 or 80; operation of injection tedious, with considerable hæmorrhage; whole operation lasted half an hour, and heart acted for considerably more than an hour. When opened the heart was beating quickly (above 100) but regularly; second sound indistinct. *Phenomena*—Effects of pressure on the heart. Action of threaded auricles. No ventricular sound, and why. Manner of auricular diastole. Resistance to pencil in mitral orifices, and how caused. Pulsation of cava. Phenomena of ventricular systole. Mechanism of cardiac impulse. Valvular jerk over the mitral opening in systole, and modifications of first sound artificially produced hæmorrhage from left auricle. Relative sizes of ventricles.

Section 1.—The stethoscope, loaded with four to five pounds of shot, &c., and placed on the ventricles as before, was jerked up by each systole, and subsided and deeply indented the parietes in each diastole.

Section 2.—The callipers were applied as before, but with a tension much exceeding that formerly used, and with a similar but not equal result; the heart being considerably less vigorous, as well as the spring much stiffer. The action became much hurried under the pressure of the instrument, but the legs were pushed asunder with some force in systole, and a deep indentation was caused by them in the parietes in diastole, which did not wholly disappear sometimes in systole.

Section 3.—The tip of the appendix of the left auricle was threaded as before, and the auricle and ventricle acted nearly but not exactly in alternation, and the thread was felt to be forcibly drawn downwards at the moment of auricular dimpling and systole.

Section 4.—No auricular sound could be distinguished, apparently owing less to want of energy in the auricle than to the rapid beat of the heart, and sudden supervention of the ventricular systole before the completion of the auricular. The left appendix was repeatedly inverted with a pencil and with the finger, and on the instant of being let free recovered its shape and position, appearing to emerge with rapidity out of the auri-ventricular orifice and sinus, apparently owing to a continuous and copious influx of venous blood into the appendix, especially during the systole of the ventricles.

Section 5.—In experiments on the mitral valves, repetitions of former trials, and with inverted auricles; some resistance, as of a hard edge, was repeatedly felt by the finger, and the pencil was pushed outwards with some force: but the edge felt was suspected to be the edge of the interior orifice, and not a valve. On the inner side, or that next the septum, the resistance in systole was more energetic than on the outer.

Section 6.—The thread that had been passed through the appendix was drawn upwards to check the systole during auscultation of the auricle, but the operation was difficultly performed, and, at all events, no perceptible difference resulted. The first cardiac sound appeared unchanged.

Section 7.—A slight motion of the cava was observed accompanying the auricular systole, viz. a diastole followed by a systole; both slight.

Section 8.—In systole the auricle became rounder, harder, tenser, and shorter. Both fundus and apex, but especially the latter, were elevated, and the apex seemed to turn slightly from left to right.

Section 9.—An eccentric impulse or abrupt push outwards was perceived on whatever side we touched, while the heart acted with any energy; and this push or impulse was most striking, though least powerful, just at the apex; on account, as it seemed, of its pointed form.

Section 10.—An undulatory sort of motion was perceived in systole, from fundus to apex along the parietes. In addition to the general eccentric impulse, there was observed over the orifices, arterial and auricular, a jerking motion not observed elsewhere; and this jerking was indistinct or null over the interior orifice in a subsequent experiment, in which the mitral valves were prevented from closing by a slender instrument something like scissars, the parts of which beyond the joint were introduced through the auricle without inverting it into the auri-ventricular opening, and while the blades were kept separate the first sound, as heard on the ventricles, was found to begin dull and obtuse, and an obtuse beginning, and a well defined beginning, were heard alternately, according as the blades were separated or brought together, and as consequently the valves were obstructed or left free.

Section 11.—The tip of the left auricle was snipt off, and hæmorrhage was excited, which was constant, but with slight jets at the systoles of the auricles.

Obs. IX. and X.—7th. Operated on two rabbits; one a large vigorous domestic one, and the other a smaller wild one. Both stunned by a blow on the head. The larger one was violently convulsed before death, and when the chest was opened the heart was not beating, and the only result obtained was:—

Section 1.—Distinct beatings in the large vein on the left side, which winds round the base of the heart to empty itself in the right auricle. The actions observed were a systole followed by a diastole, and then a short pause. There was no auricular systole; the venous beating continued for many minutes.

Section 2.—The second heart acted for some minutes with some energy, especially the right cavities. The left cavities were drained by hæmorrhage, owing to an accidental wound in the superior great vein in opening the thorax. For some minutes the rhythm of the action of the cavities went on normally: first, the very rapid and abrupt auricular systole, and then immediately the ventricular systole, more gradual and of longer duration, and then the pause.

Section 3.—When the left ventricle acted, the apex cordis seemed slightly deflected to the left in systole, dragging the apex of the right after it; and when the right ventricle acted alone, no deflection to the left was observed.

Section 4.—For a considerable time after the cessation of the left side, the right cavities acted regularly; but after five to ten minutes, the ventricle especially began to flag, and the auricle then acted frequently without any following ventricular systole. But on one occasion, without obvious cause, the auricle became sluggish, and even for a few moments motionless, while the ventricle acted by itself more than once.

Section 5.—In the systole the apex approached the base, and the opposite sides approached the septum cordis, and the whole organ became rounder and more globular. In one direction, viz. the vertical, the heart always, when acting with any energy, became larger, while every other diameter was diminished.

Section 6.—After cutting out the heart, and before cutting out, but after cessation of spontaneous motion, systole was easily excited by irritating with scissars, &c; and after the left had nearly wholly ceased to answer stimuli, still the right ventricle contracted on the point of a scalpel being applied to the left ventricle.

Obs. XI. and XII.—11th. *Phenomena.*—Stroke and sound obtained as if from locomotive force in systole of ventricles. Rhythm of the heart's motions. Manner of auricular action. Same of the ventricular venous motions. Mechanism of the cardiac throb or impulse. Mode of hæmorrhage from a wounded auricle.

11th.—*Subjects.*—Two donkeys operated on. One about six weeks old, the other two and a half months. Both rather weak from fasting twenty-four hours, owing to being too young to eat or drink properly. Each heart ceased to beat after above half an hour. First animal had his forehead beaten in so as to stun him, and chest then opened. Heart acted quickly and not very regularly. No distinct second sound. No auricular sound.

Section 1.—Before opening pericardium, a hard flat body, having a piece of lead weighing about a quarter of a pound fixed on it, was placed on the heart, and a stethoscope was held at a short distance over it, *i.e.* at a quarter or third of an inch; and at each systole of the heart the lead rose up abruptly and struck the stethoscope with a tick audible at some yards distance, and receded with diastole to sometimes nearly half an inch, and again rose up and impinged in systole, and so on.

Section 2.—The pericardium was then opened, and the auricles and ventricles observed. No auricular sound could be detected. The auricles acted immediately before the ventricles, and after the pause or rest, and very abruptly and rapidly, though the heart acted rapidly, probably considerably above 100 per minute.

Section 3.—The auricles were observed to dimple and contract all round, from periphery to centre, as in former observations.

Section 4.—The changes in the ventricles were particularly plain and striking. The apex obviously moved slightly upwards and to the left, and was drawn towards the base in systole; while the horizontal transverse diameter of the heart, as the animal lay on its right side, was diminished; and the transverse vertical diameter, and that alone, was increased, owing to the heart becoming, from flattish inferiorly and superiorly, convex, and from in the centre compressed or depressed, strictly globular or protruding, so that the central longitudinal axis was elevated during systole, and lowered in diastole; while in diastole the apex rather approached the sternum, from which it had receded in systole, owing to shortening of the organ.

Section 5.—The veins were observed; and except perhaps a slight undulation downwards during auricular systole, evinced by a diastole followed by a systole, both very slight, nothing decided was observed. As in all former observations, the ventricles and auricles respectively acted together.

[To be continued.]

CASES AND OBSERVATIONS

ILLUSTRATIVE OF THE

MERCURIAL TREATMENT OF SOME FORMS OF INCIPIENT PHTHISIS PULMONALIS.

By William Munk, M.D.,
Physician to the Tower Hamlets Dispensary.

[Continued from p. 118.]

The close connection existing between irritation or inflammation in one or other of the tissues of the lung, and tubercle as cause and effect, has been particularly dwelt upon by Andral *, who enumerates the following as the principal morbid alterations accompanying the development of tubercle:—first, hyperæmia of the bronchia of a certain size; second, hyperæmia of the air cells and ultimate ramifications of the bronchia without obliteration of their cavities; third, hyperæmia of the same parts with considerable thickening of their parietes, and obliteration of their cavities; fourth, an effusion of blood into the tissue of the lung; the blood thus effused coagulates, becomes a living part, and secretes tubercle †. In reference to these pathological conditions he states that, in certain cases, and those not the least numerous, *the morbid alterations of the lung were evidently prior to the formation of the tubercles, and contributed to produce them.* In the Clinique Médicale there is a passage explanatory, in some respects, of that just quoted. In it the author alludes to the influence of bronchial inflammation as giving rise to tubercle; but the explanation will, *mutatis mutandis*, apply with equal force to the same pathological condition elsewhere situated. "What ought never to be lost sight of," says he, "is this—that, in order that inflammation of the mucous membranes of the air-passages shall be followed by the production of pulmonary tubercles, it is necessary to admit a predisposition. This being admitted, we can easily conceive how, in one individual, very slight bronchitis is sufficient to produce tubercles, whilst others do not become phthisical from the most severe and long-continued pulmonary catarrh." Sir James Clark also expresses his belief that inflammation in a tuberculous constitution may give rise to the deposition of tuberculous matter in place of coagulable lymph, which, in healthy subjects, is its natural product, and thus inflammation may be one of the immediate causes of tuberculous disease ‡.

I have quoted these authorities at length, because I conceive that the recognition and just appreciation of the facts and opinions therein contained will have a most important bearing upon practice, and because each day's experience leads me to the opinion that cases like to these are far more numerous than is now generally admitted. The existence, in one class of cases, of inflammation within the lung, to be succeeded by the deposition of tubercle as cause and effect, is widely different from those in which an inverse relation obtains—where tubercular matter is first laid down, and inflammation follows either as consequence or coincidence. The causes determining tuberculous disease towards the lung are, in these instances, widely different; in one it is well known, and within the reach of medicine; in the other it is unknown, and the means at our command are comparatively inoperative. One class of cases are curable, though, from circumstances, not always cured; the other are incurable, as regards medicine, though nature's efforts are, in a few rare instances, more successful.

As inflammatory action is in these cases the distinguishing characteristic, and throughout performs so important a part, it is but natural that, to its consideration, much attention should be given, and that its removal should be held as a canon of the first importance in our treatment. Blood-letting, either general or local, counter-irritants, emetics, digitalis, &c., the means which experience testifies to have been the most efficient in the treatment of phthisis, act principally by the removal or diminution of inflammation, determination of blood, congestion, and the disordered movements in the system to which their existence gives rise. These measures are, however, rarely sufficient for the perfect cure of the pathological conditions above mentioned, more particularly of the variety termed scrofulous, or the modification impressed upon inflammation by its occurrence in a scrofulous constitution. Highly important as auxiliaries, they must in no case be neglected, but as controllers of the disordered action of the capillaries, which constitutes inflammation, they are, in the majority of instances, inoperative. A medicine was wanting more potent in its effects, one whose action was evidenced not so much upon the central organs of the circulation as are blood-letting and digitalis, but on the periphery of the system, the capillaries.

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* Pathological Anatomy, translated by Drs. Townsend and West, vol. 2, p. 563.

† This opinion of the secretion of tubercle by the blood itself M. Andral has since eschewed.

‡ Op. citat. p. 46.

cess; and did the previous history and general symptoms leave me in much doubt as to the propriety of employing mercury in any particular case, the existence of a very moderate amount of dulness would induce me at once to omit its use. I agree, indeed, with Dr. Hughes, in thinking "that appreciable dulness on percussion is very far from being an early physical sign of phthisis, and that when it is clearly distinguishable below one or both clavicles, or in the acromial regions, the complaint has generally advanced too far to be effectively treated." It must, notwithstanding, be borne in mind that dulness on percussion may even in cases of undoubted phthisis arise from other causes than the deposition of tubercle, and may either spontaneously or from the effects of treatment be considerably diminished, and even altogether removed from certain portions of the lung. The cause of dulness in such cases is either inflammation or congestion, and it is to intercurrent attacks of this nature, and their subsequent removal, that we are to attribute the alteration of the phenomena above mentioned. Many writers are of opinion that the dulness occurring very early in consumptive cases is more owing to congestion or inflammation of the lung than to the presence of tubercle. That such is the correct explanation of the cases above referred to, where dulness has been recovered from, seems more than probable. Every one at least must admit that such an explanation is more consonant with our knowledge of the habitudes of tubercle, and the effects of medicine, than that which would attribute it to the absorption of tubercle itself. Admitting the occasional absorption of tubercular matter to be a well-established fact, it yet remains to be proved that such a process is favoured by the action of mercury upon the system. Without, however, denying that such may be the case, and allowing that analogy is in favour of the supposition, it must be confessed that the present state of our science by no means warrants us in receiving this effect of mercury as more than probable.

The period, however, which may elapse between the commencement of the indisposition and the deposit of such a quantity of tubercle as to produce dulness, varies much in different cases. It may be stated, perhaps, as ranging between three weeks and three months. I have known the lung so far solidified within the former period as to put the use of mercury quite out of question. The attack supervened in this instance upon measles. In the course of three weeks the superior portions of each lung gave a perfectly dead sound upon percussion, and there was an entire absence of respiratory murmur in the same parts. The patient, æt. 18, died within nine weeks from the commencement of his illness, and upon examination cavities were found in the apex of each lung; the surrounding parts being completely solidified. That the condition above described may continue for eleven weeks, and so small an amount of tubercle be deposited as but slightly to impair the sonoriety of the lung, is proved by the case of Thomas Smith (No. VI.) below detailed. My experience has not been sufficiently extensive to enable me to say whether or not it may last longer without giving rise to marked dulness. Two cases I have witnessed, the histories of which were so perfect as to leave little or no doubt as to their nature, where a period little exceeding three months sufficed to induce well-marked dulness, and render the use of mercury inadmissible. One of these cases came under my observation fourteen, the other fifteen weeks from the commencement of the illness. That the usual course and tendency of scrofulous bronchitis or pneumonia are not represented by these extremes is sufficiently probable. The rapidity of progress observed in one instance, and its protracted duration in another, must be looked upon as exceptions to a general rule. The average duration of this primary stage will, I think, be found in a period about intermediate between the extremes above mentioned. Although speaking doubtfully on this point, I am at least certain that the rapidity of progress within a given period increases in a direct ratio with the duration of the disease. Thus, for instance, if we compare two patients, one of whom has been suffering five weeks, the other eight, and whose symptoms at the time of our comparison are as nearly alike as possible, we shall find that after a given time, say a week or fortnight, a much greater progress has been made in the latter than the former. It is thus only we can explain a circumstance constantly noticed by such patients, that their symptoms were at the commencement comparatively stationary, or at most made but slight progress; that subsequently they became more and more rapid in their course, and latterly each day has sufficed to induce a well-marked increase in every symptom. We deduce from this fact an important practical precept—to lose no time in putting the patient under the specific influence of mercury, and this more especially when the case has been at all protracted. The delay of a few days early in its course may be without ill effects, and will probably, in many instances, be advantageous, by giving time for the employment of important preparatory or auxiliary means; but where such symptoms have persisted for a much longer period, any considerable delay is likely to be followed by serious consequences; for the disease may thus advance to such a degree as to place it out of reach of medical assistance.

Admitting the injurious influence of mercury upon the general constitution, yet having determined upon its employment for the removal of local disease, an object of no slight importance is to administer the medicine in such a manner as to obtain to the utmost the beneficial effects it is capable of producing upon the lung, whilst we avoid, as far as possible, the damage it may do to the constitution. The more immediate of the injurious consequences of mercury are fever, great nervous irritability or disorder of the alimentary canal, whilst the more remote, though not less important, morbid states are, in great measure, dependent upon, and originate in, one or other of the three conditions just enumerated. To obviate, then, or diminish these, as far as practicable, is our only chance for good. Much may be done, in the way of prevention, by the employment of preparatory treatment — a point too much neglected in the present day, but to which the attention of the profession has recently been directed in a forcible manner by Dr. Colles. Fever, in the proper sense of the word, is a rare result of mercury in the scrofulous diathesis. It does, however, sometimes occur, and chiefly in those individuals who present more or fewer of the indications of plethora—who have a firm unyielding pulse, and other indications of the phlogistic habit. These, it must be confessed, are rare concomitants of the scrofulous diathesis: they frequently occur, however, in the form of pyrexia, as symptomatic of local inflammatory action; but whether primary or secondary their existence predisposes strongly to the occurrence of mercurial fever. In a primary or idiopathic state we rely chiefly on aperient medicines, saline diaphoretics, quiet, and low diet. These means pursued for a few days are usually sufficient to reduce all inflammatory disposition, and to pave the way for the mercurial course. But when originating in local inflammation, other measures, as blood-letting, either local or general, may be required in addition. This feverish condition, despite all preparation, will commonly occur in a greater or less degree immediately preceding the establishment of mercurial action on the gums. It is evidenced by the usual phenomena of pyrexia, and by an aggravation of the local symptoms, for the cure of which mercury has been employed. The application of a small number of leeches, and the administration of saline diaphoretics, will suffice to control these symptoms, which, however, either spontaneously diminish or subside on the establishment of ptyalism. As the more frequent consequence of mercury we notice nervous irritability, which, in the scrofulous habit, it is next to impossible wholly to avoid. A clear state of the intestinal canal, and a healthy aspect of the evacuations, are the conditions best calculated to ward off such a state. If not already existing, they should, therefore, be obtained by medicine ere the use of mercury is commenced. Notwithstanding this preparatory treatment it will usually be advisable to combine either sedatives or narcotics with the mercurial. A light bitter infusion may, in some cases, be advantageously substituted for or combined with the sedative. This practice is called for more particularly where, in addition to great debility, there is a clean moist tongue, healthy condition of the excreta, and copious perspirations. Sarsaparilla often acts kindly as a soother of the irritable state of the nervous system, producing greater tranquillity during the day, and more comfortable nights than will any selection or combination of narcotics. 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During the mercurial course attention to diet and regimen must be rigidly enforced. The patient should be placed on the farinacea, or milk; animal food, fruits, vegetables, fermented, vinous, and spirituous liquors, being altogether proscribed. He should inhabit a large, airy, well-ventilated apartment, constantly maintained at one temperature, and, in addition, should wear next the skin a fine flannel garment, enveloping the whole body from neck to foot. With the preparatory and concomitant measures now recommended mercury will generally be well borne, and its use, when once commenced, must be regularly continued until the gums become affected. From an irregular and indecisive administration of this medicine ill effects will almost invariably result. Should it, therefore, manifestly disagree, its exhibition must be immediately and finally desisted from. In other instances, where but slight phenomena of disorder occur, it becomes a question, to be decided only by the circumstances of the individual case, whether, despite of these, to continue its employment, or withdraw the medicine and attempt to remove the cause upon which its injurious effects appear to have depended. In the latter instance we may, perhaps, be justified in once more resorting to its use; but if it again disagrees, the medicine must be at once withdrawn, never more to be employed. I have usually combined in one formula, with the mercurial, ipecacuanha and a sedative: the frequent irritative and distressing cough commonly attending this disease proving, as it does, a constant source of disquietude through the day, and of restless nights, with the results of broken rest, are indications sufficiently clear (independent of those derived from the general habit) for the administration of sedatives. Hyoscyamus or conium are those which I principally employ; but where these fail of producing the desired effect, recourse may be had to hydrocyanic acid, belladonna, the salts of morphia, &c. Ipecacuanha acts beneficially in freeing the expectoration, and, I am inclined to think, determines the action of mercury more particularly to the bronchial mucous membrane.

However beneficially these measures may operate, it must not be forgotten that the employment of mercury is but preparatory to other and more strictly curative treatment. After the removal or suspension of local disease by mercury, an equally or even more difficult task remains of correcting the cachectic condition upon which has mainly depended the local lesion. The patient, no less than the practitioner, should remember that from extreme and immediate danger he has only been snatched by severe and almost equally dangerous means; that the same liability to local disease exists as before, ready again to start into existence upon the application of the slightest exciting cause. One great object in administering mercury is to gain time for the employment of measures to restore the general health, by removing a local action which, allowed to continue, would give rise to such disorganization as quickly to place the patient out of the pale of cure, and long ere means calculated to work a salutary influence on the constitution could take effect. Unless this truth be fully admitted, and the practice to which it leads rigidly enforced, mercury should upon no account be administered. It does not fall within the purport of this paper to discuss the treatment best adapted to the cure of scrofulous cachexia. This has, indeed, been so fully done by Sir James Clark, in his thirteenth chapter, as to leave nothing to be desired *.

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* Pitcarne, as quoted by Allen, Synop. Univ. Med. ed. v. p. 159, Lond. pursued a practice not

With these prefatory remarks I proceed to detail the nine cases which I have subjected to the mercurial mode of treatment. Five of them have recovered; one was temporarily relieved, but died subsequently of phthisis; three experienced little or no benefit from the treatment adopted. These, with the cases of the Dublin physicians, are twenty-one in number, of which eleven were cured, three considerably benefited, six experienced no relief, and in one, the medicine disagreeing, could not obtain a fair trial.

[To be continued.]

ON PERICARDITIS.

By James Douglas, A.M.

Lecturer on Anatomy, &c. &c.

[*For the London Medical Gazette.*]

(Concluded from page 112.)

When the existence of pericarditis has been determined, our difficulties are to a great extent over; not, indeed, that our treatment will always be successful, but the plan of treatment is clear. It is quite similar to that of other membranous inflammations; bleeding, general and local, mercurials, and counter-irritation, are the means to be employed. A bleeding to the extent of twelve or fourteen ounces on each of two successive days, followed by leeching, and accompanied by the administration of calomel and opium, three grains of the former and half a grain of the latter every third hour till the mouth be affected or the symptoms decline, will generally arrest the progress of its malady. When it has begun to decline, a blister over the region of the heart will accelerate the cure. After the inflammation has been completely subdued, much attention will require to be paid to the health for a considerable time, to obviate, if possible, the supervention of hypertrophy.

I will now proceed to illustrate the preceding statements by a few cases.

Case I.—James Murray, æt. 44, collier; admitted into the Glasgow Royal Infirmary, Nov. 30, 1833. For three years has been subject to violent action of heart, much increased upon exertion. Action of heart is regular, but impulse is violent, and sounds are widely heard even over both sides of back. There is a sort of creaking sound accompanying both systole and diastole. There are frequent paroxysms of pain, like the stroke of a knife, at left mamma, shooting to left arm. Pain is increased by pressing over region of heart, and has been distressing for the last ten days; for four months previous to which he had been pretty well. Pulse 120, hard, firm, and bounding. Both sound and impulse of the larger arteries, particularly subclavians, very great. That of subclavian seems to equal the impulse of an ordinary heart. Jugulars do not pulsate. He has no cough nor dyspnœa, but frequently awakens with frightful dreams. Other functions natural.

On Dec. 1st he was bled to sixteen ounces, and I wrote down the diagnosis, great hypertrophy of left ventricle, with dilatation of right.

Dec. 2d.—Blood cupped and buffy; creaking has now more of the bellows-sound, still heard in same situation. It was observed this day by Dr. Campbell, now assistant-surgeon to the First Guards, Dr. Gabriel Stokes, and Dr. Walter Dick. I added to the diagnosis, pericarditis.

He was cupped to eight ounces over the region of the heart, and had a powder containing three grains of calomel, half a grain of digitalis, and half a grain of opium, every third hour. • After using these powders for two days and a half, till his mouth became sore, they were given up, on account of their griping and purging. On Dec. 6th it is noted that pain was still excited by pressure: the frottement became less audible towards left and lower parts of precordial region. A blister was applied.

8th.—He complained of distressing palpitation, and was ordered tincture of digitalis. After this, pain abated, though still excited by pressure; and the friction-sound had nearly disappeared. On the 14th he took a longing to go home, so that we lost sight of his further progress.

Here, then, we have an example of

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unlike that herein recommended: "Quamdiu tabes est in primo gradu et probabile est sanguinem non esse extravasatum ulcusve nondum factum debet ante usam decoct: ex lignis et dum purgantibus utimur adhiberi mercurius dulcis non quidem cum purgantibus simul eodem die sed sine purgantibus post aliquot dies."

pericarditis taking place without any obvious cause, cured by ordinary antiphlogistic treatment.

Case II.—Charles Leech, æt. 19, tinsmith; April 25th, 1834, Glasgow Royal Infirmary. Five days ago was attacked with acute rheumatism, after exposure to cold. Joints are red and swollen; pulse full and bounding; skin hot; tongue furred; thirst. Since yesterday has complained of pain in precordial region, increased on pressure. Breathlessness and cough, without any expectoration; friction-sound heard over heart.

V.S. ad ℥xx. statim. At bedtime an anodyne diaphoretic draught, and in the morning salts and tartar emetic.

April 27th. — Was yesterday bled again to fourteen ounces, and had calomel and opium in the evening, by which he was severely purged.

To use a mixture, with tincture of digitalis, antimonial wine, and solution of carbonate of ammonia.

On examination to-day a friction-sound is heard all over precordial region, smaller than I have heard it in pleuritis, resembling the trituration of ointment in a mortar, very close to the ear. The two surfaces are heard to rub together both with the systolic and diastolic action. A friction-sound was heard also to the right of sternum, at its lower part, as if that angle of the cavity of the pleura, where the pleura is reflected from off the pericardium, were affected. No bellows-sound heard; pulse 100, regular.

28th.—Sounds much the same; feels easier.

To begin calomel and opium again.

30th.—Was cupped yesterday over heart; friction still audible at lower part of heart, but not much above level of nipple, indicating adhesion above that; mouth becomes affected.

May 1st.—Complained this morning of acute pain in right side of chest, shooting through to back; pulse irritated; friction-sound heard with respiration in right lung, between middle of scapula and spine; that over heart much the same; mouth gets sore.

V.S. ad ℥xvj. Continue calomel.

3d.—Now no frottement over heart, but slight soufflet with first sound; complete adhesion has therefore taken place; pulse 100, quite soft; friction-sound also gone from right pleura; no pain on respiration.

Omit the calomel.

A few days after this was dismissed cured.

In this case we have an example of extension of the disease from the synovial membrane to the pericardium, and from that to the serous investment of the lungs; and we see all these inflammations yielding to vigorous and continued antiphlogistic treatment.

It was remarked above, that pericarditis might follow inflammation of a joint after injury. I have no notes of the following case, which illustrates this.

Case III.—A man was admitted into the Royal Infirmary in 1835, on account of a fall on his hip. No fracture was detected; he was leeched, and had other antiphlogistic treatment. In a fortnight he died without any obvious cause. On examining the hip, the thigh-bone was found fractured through the trochanters; but from the form of the fracture the upper fragment was firmly wedged into the lower. No crepitus could therefore be produced; and had the man lived, bony union must have taken place without any treatment. But a sharp edge of the bone had perforated the synovial membrane, and excited inflammation. The joint was full of reddish purulent matter, and, on opening the chest, about two ounces of matter, exactly similar, were found in the pericardium.

I will now quote from Bouillaud's work on the Heart, a case illustrating what has been called metastasis; the disappearance of the rheumatism from the joints, and its subsequent appearance in the pleuræ and pericardium[*].

Case IV.[†] A young man, aged 18, of a delicate temperament, admitted into La Charité, June 27th, 1833. He had been sleeping in a damp place, and all his large joints were affected with acute rheumatism. He was repeatedly bled, and had Dover's powder.

On July 2d the pains suddenly disappeared from the joints, and in the same moment he was seized with dyspnœa, sharp darting pain in both sides of chest, with dry and frequent cough.

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[*] In the cases quoted from other persons, I shall confine myself to the points illustrative of the particular part of my subject.

[†] Bouillaud, Maladies du Cœur, tome i. p. 496.

The existence of a double pleuro-pneumonia was ascertained by the stethoscope. Bleeding again, general and local.

4th.—Dulness of both sides below scapulæ was observed, with œgophony. By another bleeding, and the use of blisters and purgatives, the pleurisy was subdued.

About the 17th pericarditis came on. From the account it appears to have been overlooked for two or three days, for there is no notice taken of the friction-sound. After attention was drawn to it, a bellows-murmur was heard; then this disappeared, while dulness on percussion succeeded, with a gradual swelling or arching of the chest from the second to the fifth rib, with protrusion of the intercostal spaces. The sounds of the heart were heard dull, as if at a distance. Antiphlogistic treatment was persevered in, but it was three weeks before he could be dismissed.

The only remark that I would make on this case is, that it seems strange to us, on this side the channel, that, in a case of such extensive membranous inflammation, not a word is said of the use of calomel or mercury in any form.

Case V. exhibits the supervention of pericarditis on the suppression of a cutaneous eruption. It is related by Dr. Stokes*.

Laurence Toole, æt. 5, admitted into the Meath Hospital on the 5th April, 1833. A fortnight previous to admission he had been affected with some cutaneous eruption, the nature of which could not be ascertained. This had been rapidly removed by the use of some ointment, and in a few days after its suppression he became heavy and drowsy. Respiration is laborious and hurried, 32 in the minute; countenance depressed; lips livid; pulse 130, small and jerking, but regular; heart's action extremely violent, communicating a distinct *fremissement* to the hand, as if two rough surfaces were rubbing violently upon another. Friction-sound heard both with systole and diastole.

On his death, three days after, both surfaces of the pericardium were found covered with a reticulated layer of lymph, of a reddish colour. There was no adhesion, nor no fluid.

Case VI. is an example of pericarditis following another skin disease, scarlatina*. Mary Winters, æt. 12, a delicate-looking girl, admitted into the Hardwicke Hospital, Dublin, October 1834, for scarlatina. She became convalescent in a few days. On Nov. 10th she was suddenly attacked with great dyspnœa and sense of suffocation. Countenance anxious; sits in bed leaning forward; cannot lie down; points to epigastrium as the seat of her distress. Short, teazing, dry cough; makes no complaint of pain about heart, but when questioned says she has palpitations; has great tenderness to pressure in epigastrium, and on ribs over heart. Sounds of heart unaccompanied with friction-sound.

It would seem that here the disease was caught in the first stage, before there was any effusion of lymph. Bleeding was had recourse to, and calomel and opium. On the third day friction-sound was heard all over heart. On the sixth day it disappeared, action of heart became regular, and in two days more she was discharged.

Case VII., from Dr. Hope's work†, is not properly an example of pericarditis, but is introduced to exemplify the diagnosis of effusion of fluid, where there were no previous signs of inflammation.

J. S., a little thin sallow man, with circumscribed patches of red on his cheeks, was received into St. George's Hospital with orthopnœa, cough, watery expectoration, ascites; face puffed and leucophlegmatic; great œdema of legs; urine scanty; pulse 110, weak; an undulating or rolling motion perceptible in precordial region.

Auscultation.—Resonance dull over an unusual extent of precordial region. Impulse of left ventricle slightly increased, but undulating, and not synchronous with the ventricular contraction, as indicated by the first sound. Sounds short, flat, and audible over the whole anterior surface of chest: neither coincides with the pulse, and they are so much alike as to be with difficulty discriminated. Left side of chest dull on percussion. Diagnosis: dilatation of left ventricle, hydropericardium, and hydrothorax.

He was treated with elaterium, calomel, and diuretics, and the hydropericardium seemed to decrease, the heart striking the ribs more distinctly. In a month he died.

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* Dublin Journal, vol. iii. p. 40.

* Dublin Journal, vol. vii. p. 263.

† Page 539.

Inspection.—Upwards of two pounds of serum in cavity of left pleura; three or four ounces of bloody fluid in pericardium; left ventricle dilated.

Dr. Hope remarks that the hydropericardium was indicated by the undulatory nature of the impulse; by its want of coincidence with the sound of the ventricular contraction; by the sensation communicated through the stethoscope that the heart did not strike the ribs immediately, and by the extensive dulness of the precordial region on percussion.

We have seen, in several of the cases related, that when recovery took place the friction-sound disappeared; and I have yet to shew, by a case of pericarditis dissected soon after the cure, that adhesion is the necessary termination.

CASE VIII.—As this case, that of Amelia Harris, was taken from the MEDICAL GAZETTE*, I shall only advert to its leading features. The girl, after acute rheumatism, suffered from inordinate action of the heart. The general signs were as usual, and distinct friction-sound was heard accompanying both motions of the heart. An attack of erysipelas came on and carried her off, after the friction-sound had quite disappeared, so that the normal sounds of heart only were heard. Having died exhausted by the erysipelas, the cavity of pericardium was found entirely obliterated, the opposed surfaces being glued together by recent lymph in considerable quantity; slight vegetations on aortic valves, indicating inflammation of the endocardium also. As related by the original reporter, this case exhibits very well the circumstances under which metastasis of inflammation takes place from the joints to the pericardium. The original disease had been subdued by the copious abstraction of blood, but the system was thereby rendered weak and irritable, so that the pericardium was more easily affected.

The last case (Case IX.) which I am going to relate is one shewing the coexistence of two friction sounds—one in the pericardium, the other in the pleura.

Frances Kelly,* ætat. 24, attacked, March 25, 1833, with severe arthritis. Besides the ordinary symptoms, a slight friction-sound was heard near the apex of the heart. Free bleedings were ordered, both general and local, and tartar emetic.

On the seventh day after admission she was in a state of high fever, although there was no corresponding increase of the inflammation of the joints. Dr. Stokes carefully examined the chest. The left side had become dull in its lateral and inferior portions, and the respiratory murmur had become feeble. In addition, there was a decided pleuritic friction-sound in the antero-inferior portion. That it proceeded from pleuritis was obvious from this, that it was synchronous with respiration, and ceased whenever the patient held her breath.

In using the term chronic pericarditis, I would be understood to mean, not long-protracted pericarditis, for no such thing has ever come under my observation, nor do I believe it can occur, but rather, speaking more strictly, the consequences of pericarditis—the changes which take place in the pericardium in consequence of its inflammation, when that inflammation has not proved immediately fatal.

After inflammation of the pericardium, when an increased nutrition has continued in it, we occasionally find it much thickened, becoming as it were hypertrophied. This thickening does not take place in the serous layer, but in the subserous cellular tissue; and sometimes it occurs in the fibrous layer of the bag of the pericardium. In making inspections we often find small milky opaque spots on the surface of the heart, where no complaint had been made of inflammation so far as we know. Nevertheless, there can be no doubt that these spots were originally circumscribed effusions of coagulable lymph, which have now become organized, and reduced in thickness. By laying hold of them carefully with the forceps, they can always be peeled off from the pericardium.

Sometimes we find the pericardium lined with much rough false membrane, stained of a red colour by bloody transudations, and we find a little of this bloody fluid in the remaining cavity. It is said that even pus has been found in the pericardium, but this, as stated near the beginning, I am disposed to doubt. Accompanying these different states, we most commonly find some traces of inflammation about the lining membrane and valves, but of that it is not in my province at present to speak.

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* Vol. ii. 1838-39.

* Dublin Journal, vol. iv. p. 47.

Adhesion of the free surfaces is, however, the most common consequence of pericarditis. After a cure has taken place, the false membrane gradually becomes absorbed, and what is left becomes changed into a thin layer of cellular tissue. In consequence of this adhesion the action of the heart becomes embarrassed, greater force becomes necessary to perform its functions, and hypertrophy is the result. Bouillaud speaks of atrophy of the heart from this cause, but of this I know nothing.

There is a drawing in Dr. Hope's work on Pathology, exhibiting a case of old pericarditis. The whole interior of the sac and surface of the heart are lined with a thick stratum of shaggy, highly vascular, reddish lymph, which contained nearly a pint of serum deeply tinged with blood. The left ventricle was greatly hypertrophied, and there was dilatation of both cavities. The patient was aged 52, and died of a third attack of apoplexy, a disease which very often depends upon hypertrophy.

There is also a very beautiful plate in the work of Cruveilhier, evidently of the same nature. The fluid in the sac was bloody. The surface of the heart is seen covered with lymph drawn out into points, not unlike the outside of a pine-apple. He supposes these points to have been adhesions ruptured by the effusion of blood, but I should think that doubtful.

The only physical signs of adherent pericardium which have any supporters in systematic works at the present day, are these three—increased impulse at the base of the heart, epigastric pulsation, and, depending on the same cause as this last, retraction of the intercostal spaces. The first two do not appear of much value. Mr. Aspland, in the MEDICAL GAZETTE, June 1839, notices an additional diagnostic deduced from the lessening of the mobility of the heart's apex. In a healthy individual, sitting erect, the apex of the heart strikes at two inches below the left nipple, and one inch nearer the sternum, If lying on the left side, it strikes in a line vertical with the nipple; if lying on the right, it strikes in a line with the edge of the sternum. In adherent pericardium, this mobility, he says, is lost. [I am happy to be able to confirm the value of his diagnostic by the observation of a case, since this essay was read, where there had been pericarditis some months before. The apex of the heart did not change its place of beating by any change of the patient's position.]

Mr. Aspland supposes that a friction-sound may be present in cases of *adherent* pericardium, and gives a case of a girl who had pericarditis ending in adhesion two years before the illness which caused her death. On the second attack there were murmurs, occasioned by deposits, chiefly recent, on the valves, and there was a *frottement*, which Mr. Aspland attributes to the pericardium, although the adhesions there were *old* and *cellular*. But, in addition, there were *recent soft* adhesions of the lungs to the pleura. The frottement then existed, not *inside* the pericardium, but *outside*, between the pleura covering it and the pulmonary pleura; the pleura covering *the outside* of the pericardium moving *with the heart*, in consequence of the adhesive *inside*.

In another case, related by the same gentleman, the same complication is illustrated. A man had pericarditis, marked by the usual frottement, which disappeared as union of the inflamed surfaces took place. By and by, the epigastrium and intercostal spaces were drawn in by the contraction of the ventricles. Some days after, a marked frottement, ascending and descending, engaged the whole of the left pleural cavity, synchronous with inspiration and expiration, and depending on the motion between the lung and the inside of the chest which takes place in breathing. But there was a peculiarity, depending on the adhesion of the pericardium, that, close to the heart, the rubbing was synchronous, not with respiration, but with the action of the heart.

This friction in the pleura, caused by the action of the heart, I have myself observed in several instances, but have no notes of them.

I am not aware that it is generally

known that *old long* adhesions of the lungs may produce frottement. This fact was discovered by my friend, Dr. Walter Dick, who was a clerk in the hospital at the same time with myself, and was a most patient and diligent observer, and whose early death has no doubt robbed us of many fruits of his industry which a little longer time would have brought to maturity. He had a case in which the ascending and descending friction-sound was most distinct in a man's left side, over about the space of a half-crown, without any signs of inflammation at all. The man died of disease unconnected with his chest, and on looking at his left lung it was found attached to the costal pleura by adhesions about an inch long, for the extent indicated. An *experimentum crucis* was then resorted to: one of us moved the adherent lung, while the other listened with the stethoscope over the spot, and the circumscribed rubbing was distinctly heard.

The new cellular membrane forming the adhesions between the free surfaces of the pericardium may become the seat of tuberculous deposits. Dr. Hope relates a case of this kind. I have never seen it myself, but have no doubt of it, because I have seen a case where tubercles were found in the adhesions after pleuritis, of which I shew you both the preparation and a drawing.

Whenever we have bone accidentally deposited, it appears to be in the cellular tissue, and generally, but not necessarily, in or adjacent to fibrous tissue. Thus, we find patches of bone in the dura mater, and occasionally in tendons and ligaments; and I have specimens of it in the subserous cellular tissue of the pleura. In the same way we find it in the pericardium; in some cases in the subserous cellular tissue; and in other cases in the adventitious cellular layer connecting the serous surfaces together, in cases of long-adherent pericardium.

Mr. Aspland, whom I have quoted before, relates a case in the 24th vol. of the Medical Gazette, to which I shall briefly allude. A young sailor had the signs of adherent pericardium, as given a few pages back, and on inspection there were found in the adhesions several patches of bone, the largest the size of a penny piece. The mitral valve was found thickened, its tendons partly ossified, and four of them ruptured, the torn ends being covered with coagulable lymph. The reporter attributes the sudden death to this lesion. I do not think that this could be the case, as I have the preparation of a heart here in which the condition of the mitral valve is precisely similar to that described, and where the patency of the auriculo-ventricular orifice was ascertained by me with the stethoscope a considerable time before the patient died.

Bouillaud gives a case where on the inside of the pericardium was found a patch of cartilaginous texture, containing bony granules, exactly like that which I now place before you, taken from the upper surface of the diaphragm. In another of his cases there were ossifications both between the serous membrane and the fibrous layer of the pericardium, and between the serous membrane and the muscular substance of the heart. One of these latter, placed near the apex of the heart, had, by its friction, literally worn a hole in the bag of the pericardium, and caused an abscess on the surface of the diaphragm. I shew you, dried and in turpentine, a specimen with two patches of bone between the muscular substance of the serous covering, the largest about the size of a sixpence. I am indebted to Dr. R. Paterson, in Anderston, for a preparation exhibiting the most extensive ossification of the pericardium which I have ever seen. The band of bone, about an inch and a half in breadth, almost completely surrounds the heart. When recent, I examined it, and found it placed between the muscular substance and its serous investment. The patient had suffered from pericarditis about nine years before his death, and the surfaces were universally adherent.

Bouillaud gives a case of a cancerous tumor of the mediastinum encroaching upon and becoming incorporated with the pericardium; but of such I have no personal knowledge.

CO-EXISTENCE OF OVARIAN DROPSY & PREGNANCY.

To the Editor of the Medical Gazette.

Sir,

If the following case be worthy a corner of your valuable journal, by its insertion you will much oblige, your obedient servant,

J. Fosse Harding,
M.R.C.S.

13, Spencer Street,
Northampton Square.
Oct. 9, 1840.

In February, 1839, Mrs. K., æt. 27, consulted me, as she had been labouring under ovarian dropsy for several months, commencing shortly after her second confinement. She had been under the care of Dr. Maybank, of Guilford, who finding the disease not to give way from the measures he had considered advisable, had requested her to get the fluid drawn off, for which purpose she came to town, and called on me as her general medical attendant. I wished her still to try the effects of medicine, which she did, with some relief for a short period only; and in three months from the time of seeing me, I had recourse to the last resource of an operation, drawing off two gallons of a coffee-coloured fluid. In the course of a week the patient sufficiently recovered to go into the country. I prescribed for her what I considered advisable—a mercurial course, with iodine,—without any benefit, and in six months from the last operation I drew off two gallons and a half of fluid, of the same character as the last. On bandaging the abdomen I felt, as I then supposed, the enlarged ovarium. She again filled very rapidly, and I was under the necessity of affording her relief by an operation in the end of February last; but I experienced the greatest difficulty in drawing off the fluid, amounting to 14 quarts, of a chocolate colour, being more than two hours under the operation. I then examined the abdomen, and, to my surprise, found so great an enlargement, as I was led to suppose, of the ovarium; yet still, from other symptoms which afterwards more plainly showed themselves, I was very suspicious of her being pregnant; but neither the stethoscope nor manual examination satisfied me: I therefore advised her friends to get a second opinion, which they did, of a very eminent obstetric physician, whose decision was, that he did not consider that pregnancy existed, and wished for an operation as early as possible. The patient now was suffering the greatest inconvenience from the great distension of the abdomen; so much so, that she begged me again to relieve her by an operation; but my suspicions still existing, I declined doing so—at least for the present.

I was summoned a few days since by a hurrying message that my patient was dying. On my arrival I found she had been delivered of a full-grown healthy female infant, and is now doing exceedingly well, and suckling the infant; but in the course of a few weeks she will require the evacuation of the fluid, which is rapidly accumulating. I have given you the particulars of the case, as a rare instance of pregnancy and ovarian dropsy existing at the same time, and showing how guarded we ought to be, when any doubt arises, ere we proceed to an operation.

MEDICAL GAZETTE.

Friday, October 23, 1840.

> "Licet omnibus, licet etiam mihi, dignitatem *Artis Medicæ* tueri; potestas modo veniendi in publicum sit, dicendi periculum non recuso."
>
> Cicero.

PHYSICIANS IN FOREIGN COUNTRIES—DR. MARC.

Adam Smith observes, that after all that has been said of the fickleness of human nature, man is the most difficult of all commodities to transport. He means that although many or most persons show an inclination to change their position, yet, when it comes to the push—when the proposal is made to quit their country, perhaps for ever, the majority shrink from the offer.

> Nescio quâ natale solum dulcedine cunctos
> Ducit, et immemores non sinit esse sui!

This is perfectly true; and there is another reason for the unwillingness. Many kinds of merit bear a local stamp, and resemble certain wines, which, though delicious when drunk on the spot, cannot stand a distant carriage. It might appear at first sight that medical talent would be eminently transplantable; and that he who possessed the art of curing disease might practise it in any region sufficiently opulent to reward his skill. The facts, however, are far otherwise. Indeed, it is precisely in countries whose advance in wealth and civilization has engendered the greatest attachment to their own usages, that such a translation of talent is the most difficult. In England, France, Germany, and Italy, it is natural for the natives to place the most perfect confidence in their own physicians, and to turn aside from foreigners. If physic consisted merely in the solution of medical problems, natives and foreigners would meet on a more equal footing; but the successful practitioner must cure not only *tutò et celeriter*, but *jucundè*; he must have the most perfect knowledge of the social laws which he is to obey; while, with a foreigner, half a life-time often passes away, and leaves him still in the elements of this necessary art. But if the country is decidedly outrun in the European race for civilization, these reasons no longer hold good. There is no cause why the Italian should prefer a French to a Tuscan physician, and many why he should not; but it is obvious that, for some time to come, the higher classes of St. Petersburgh will continue to employ English or German physicians instead of their own. While England for so many centuries was behind the continent, the same preference naturally obtained; and we find it recorded that John a Gaddesden, the court physician in the reign of Edward II., was the first Englishman who had reached that dignity. Even so late as the time of Charles I., the court physician, Sir Theodore Mayerne, was a Frenchman. The change in this point is entire, and it must be remarkable talent, indeed, which can enable a foreign physician to obtain practice among the fastidious natives of this island. The difference of language is, no doubt, a principal ingredient in the difficulty; particularly when we recollect that ignorance of a language implies ignorance of the usages of which it is the expression.

The difficulty is almost as great in France as in England. For although some knowledge of French forms a part of education throughout Europe, yet even the traveller, whose sole occupation in France is to amuse himself, commonly finds how slight and insufficient that knowledge is. Much more, then, will this be felt by him who endeavours to earn a subsistence there, and who no longer sees around him the smiling recipients of his cash, but rivals willing to misinterpret. The foreign physician, therefore, who succeeds in establishing himself in practice among the natives of France, gives evidence of the most consummate tact, and might, without further proof, be admitted among the chosen few whose high talents are beyond dispute. The phenomenon is, therefore, rare; but France has lately lost a living example of the possibility of its occurrence.

Dr. Marc, who succeeded in raising himself from the plains of the profession to its social summit (having become physician to the King of the French), was born at Amsterdam in 1771, of a German father and Dutch mother. He studied medicine in Germany, and took his degree at Erlangen in 1792. He then devoted himself to deep clinical study at Vienna, and afterwards proceeded to Bamberg, where his uncle, Dr. Marcus, a name favourably known in science, was his guide in practice. In 1797 he went to France for the first time, and contributed, with Corvisart, Alibert, Bichat, &c., to found the *Société médicale d'émulation*. After being necessarily absent, on account of the death of his father, in 1798, he finally settled in France. "C'est dans cette heureuse terre, *magna parens virûm*, qu'il voulut se marier, vivre, travailler, et mourir[*]."

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[*] Gazette Médicale, July 18, 1840.

This determination shewed great vigour of mind. He was not acquainted with France, which had been recently shaken to its foundations by war and political troubles. Marc was twenty-nine years old, continues his biographer; and although extremely well-informed, his name was still obscure, and his University distinctions totally unknown. He was not familiar with the French language; and a crowd of difficulties, embarrassments, and prejudices, flocked to meet him on every side. If we add to all this, that his family had experienced great reverses of fortune, and that his own property was almost gone, we must acknowledge that he had "a sea of troubles" to contend against, and must allow the greater credit to him who could, "by opposing, end them." To know the precise intensity of the difficulties which a foreign physician must encounter in France, it is necessary to have tried the experiment oneself; we may understand the genus of his perplexities, but scarcely the species. In truth, the exact position of the *médecin* in France is not easy to make out at a distance; he neither corresponds to our physician, nor to our general practitioner, but is something between the two. In remote country districts he is allowed to sell physic; but this permission depends, we believe, on the distance of the nearest druggist; so that the approach of another *pharmacien* would deprive the D.M.P. of this branch of his practice.

In Paris, however, as far as can be seen through the misrepresentations of a satire *, the physician's hopes of getting on might be attributed to many a London doctor. His wish to be physician to a public institution, and to be noticed in the journals, are based on human nature, and are not limited to any single city; but when the French satirist talks of the doctor's violent attempts to become known by planting tulips, or collecting bad pictures, the sketch seems to partake largely of that species of caricature, which cannot be called an exaggeration, simply because it resembles nothing at all. There, as here, a carriage is supposed to be necessary. "Faire son chemin à pied quand on a la renommée pour but, c'est vouloir arriver tard, ou plutôt n'arriver jamais; on prend donc une voiture."

Such, however, were not the arts of Dr. Marc; he belonged to a higher sphere, and did not aim at a tricky success. Truth, skill, and earnestness, were his merits; and to these he added the confidence which springs from the consciousness of desert, and which has a tendency to produce the success by which, in turn, it is infallibly increased. Yet, strange to say, he retired for some time from the profession. Two things disgusted him with it; one being the responsibility which hangs over the head of the French practitioner; the other, the custom of the physician sending in his bill.

He then became a manufacturer of chemical substances; but in this pursuit he failed altogether, and was ruined, or nearly so; for though his talents were great, he had not the peculiar tact necessary for business.

This was a critical period of his life, and an ordinary looker-on might have thought that Marc was unadapted for any common occupation; that his apprehension was too fine for the business of real life, and that it was his destiny, in Goldsmith's phrase, to "eat mutton cold, and cut blocks with a razor." It was not so, however; he returned to his profession, and his struggles were ultimately rewarded by the most signal success. Though he worked day and night for his family, he refused gain at the price of meanness. When he had ascertained that sulphate of iron was a good substitute for bark (a most valuable discovery in 1810) he rejected with disdain the proposal which was made him to keep the remedy secret; for he felt that the duty of a physician to science and humanity was to be set before fortune.

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* Les Français: Mœurs Contemporaines. Le Médecin. Par M. L. Roux.

Some of his best writings were the essay entitled, *La vaccine soumise aux simples lumières de la raison*, his instructions concerning the asphyxia of the drowned, and various articles on public hygiene.

The same correctness of reasoning which was exhibited in his works was shown when he spoke in the learned societies to which he belonged. Dr. Marc had the moderation which results from the habit of reflection, as well as from sobriety of opinions. His biographer says that as Marc knew that nothing is more uncommon than gaining a vote by a speech, he spoke simply and deliberately, but with great argumentative force. To this he immediately adds, that by these means, without effort, without prolixity, and without oratorical hypocrisy, he almost always succeeded in obtaining victory for his opinions. From this it would appear, that the most uncommon of occurrences was with Marc an everyday event. We suppose the truth to lie between the extremes of this paradox. On the one hand, it is probable that when a man is known to be honest, and to speak for truth rather than victory, he more often gains votes than is commonly imagined; and on the other, that when the sense of the assembly was decidedly against him, even Marc's quiet good sense would rarely have gained the day.

When controversy waxed hot, and questions became irritating, ("ce qui arrive parfois dans les assemblées de confrères,") Marc held his tongue, feeling assured that there are circumstances, where, as a celebrated man has said, to be silent is to speak clearly.

Deep as were his studies, and great as were his sacrifices to duty, he knew how to unbend the bow, and, in the language of Horace, "to indulge his genius;" indeed, according to the *Gazette Médicale*, his gaiety was sometimes in excess. He often extolled the efficacy of Bassompierre's remedy against the plague and reserve, to wit a glass of good wine, though he never overstepped the limits of the strictest sobriety.

He died on the 12th of January, 1840, just as he had completed his work entitled "De la folie considerée dans ses rapports avec les questions médico-judiciaires." His calm and resigned death, says his biographer, was like the last reflection of the virtues which had honoured his life; it proved the strength and sincerity of his principles.

The remarkable success of this physician in a foreign land is an additional instance of the rewards which attend on well-directed talent and unceasing industry; and is thus an answer at once to the satirist and the hypochondriac.

A FEW REMARKS ON
MR. WARBURTON'S MEDICAL PROFESSION BILL.

Castle Hedingham, Essex,
October 14, 1840.

To the Editor of the Medical Gazette.

SIR,

AT length we are favoured with Mr. Warburton's Medical Profession Bill, and, after anxiously waiting nearly or quite seven years, what have we got? A bill for properly regulating the medical profession—supporting the respectability of its members, and defending them from the numerous intruders with whom they have long been, and still are, most shamefully pestered? No—far from it: instead of this we have a bill containing fifty-nine complicated clauses, not one of which, in my humble opinion, will benefit the profession one iota, but, on the contrary, shamefully debase it; and I really think we cannot do better than thank

Mr. Warburton for the pains he has taken, (for undoubtedly pains he has taken), and respectfully request him to withdraw his proposed measure.

The Bill commences with a declaration, "That it is expedient that all male persons practising medicine in the United Kingdom should be registered, &c., &c." Now I would ask Mr. Warburton, or any other person concerned, what is the intent or use of this registration? Are we not already registered? the physicians and surgeons in their respective colleges, and the apothecaries in the rolls or books of their own company. These lists are regularly printed (those of the College of Surgeons, I believe, annually), and may be easily obtained; the names and residences of the principal physicians and surgeons are inserted in the Court Kalendar, and, if it be considered necessary to publish the names and residences of every practitioner in her Majesty's dominions, it may surely be done just as easily as a list of the Army or Navy: but do the public require any further registration than what they now possess? The names of the heads of the profession are so well known throughout the kingdom, indeed throughout the world, that I have not the least doubt, were a letter written in China or Japan, and merely addressed to Sir Astley Cooper, or to Sir Benjamin Brodie—England, such letter would very readily reach its proper destination. With regard to the provincial practitioners, every individual is well known in his own neighbourhood, and very many of them far beyond, and I believe I may very safely assert that each and all of them are perfectly satisfied with the present mode in which their names are registered in the several institutions whence they have obtained their permission or license to practise. We require no further registration; but we require that each and all the several medical institutions in the United Kingdom should be legally authorized to enforce an obedience to their laws; that their members should be entitled to claim a suitable remuneration for their services, and to prevent improper or unauthorized persons from practising any branch of the medical profession.

For this said useless registration, which it seems is to be compulsory, an annual tax is to be imposed "to pay the costs of administering the Act; any deficiency to be specially supplied by Parliament." But the chief use of this tax is, not in any way to benefit the members of the medical profession—God help them, poor slaves!—but to create a fund for paying a gang of registrars and sub-registrars to be appointed throughout the United Kingdom, who, like the Assistant Poor Law Commissioners, will doubtless be paid their hundreds and thousands per annum for their worse than nonsensical services.

The duties of the sub-registrars are described in the fourth and fifth clauses, and require "the medical practitioner to supply them a schedule of name, address, branch of medicine, and nature and dates of his qualifications." "But," says the clause, ("hear it, all ye physicians, fellows and members of our Universities and Colleges—hear it all ye members of the Royal College of Surgeons—attend to it all ye members of the Worshipful Company of Apothecaries, and all ye students, physicians, and surgeons in embryo, who, at this present moment, are fagging hard at your studies, in order to gain the diploma—attend to, admire at, and weep over this clause; but, above all, ye chemists, druggists, quacks, mountebanks, and pretenders, read it and rejoice—

> Throw up your caps, loud Io Pæans sing,
> Till wakened echoes bid the welkin ring;

for this crowns all)—"But," says the clause, "if he do not hold a medical qualification, then, whether it is as being a chemist and druggist that he practises medicine in chief, and if under the Apothecaries' act, or a right acquired by usage before that act was passed; or whether he practises medicine in chief, without either holding a medical qualification, or being a chemist and druggist."

Here's a pretty pack—here's a rare set, to be registered and called the medical practitioners of Great Britain! But who can possibly be meant by this last class? Those who "practise medicine in chief, without either holding a medical qualification, or being a chemist and druggist." Probably any quack fellow of the Morison or St. John Long School—the physician or surgeon's footman or groom, perhaps—or the lad who sweeps the apothecary's or druggist's shop, and carries out his medicine.

As I before observed, this registration is to be compulsory, for Clause 17 declares "it shall not be lawful for any unregistered person, even although he hold a medical qualification, to act as a medical practitioner, in part of the United Kingdom; any custom, or thing contained in any statute, gift, grant, or deed, or by any by-law, regulation, or statute of any corporate body to the contrary notwithstanding." So that the highest medical degree will not entitle a man to practise without registration, yet any man may claim to be registered, and when registered may practise in any part of Her Majesty's dominions without any medical degree or qualification whatever.

I may have mistaken the meaning of the clause, but I have not misquoted the words, and to me it appears the most daring, barefaced encouragement of quackery, and the grossest insult to our Universities and Colleges I ever met with. What! shall a number of highly-educated gentlemen, who have regularly taken their degrees in medicine, be debarred from practice unless they are classed and registered with a set of paltry adventurers possessing no medical qualification whatever? Truly, Mr. Warburton must consider us a set of sad nincompoops. Mr. Warburton's medical profession bill, forsooth!—call it rather Mr. Warburton's medical extinguisher, for he seems inclined to use it as such to all our old institutions, which he would put out with as much indifference as he would so many candles.

But, good Mr. Warburton, pri'thee have a care; these said old institutions have produced, and still continue to produce, not a few men of rea lgentlemanly spirit, "bright, and shining lights," which, without especial caution on your part will, most assuredly, very severely burn your fingers.

In addition to this registration scheme, the 19th clause proposes that "three medical councils shall be constituted, one for England, one for Scotland, and one for Ireland, each to consist of 36 councillors, 12 of whom shall be non-medical men, nominated and appointed by the Secretary of State for the Home Department, and of these three councils of 108 persons, 12 members are to be annually chosen from each council to form a United Medical Senate of 36 persons. Of each 12, four persons are to be chosen from the non-medical division."

Why non-medical men are to be admitted members of a council whose office is to make by-laws and regulate the affairs of the medical profession, I am at a loss to conceive, and why the Secretary of State is to interfere in the business I am equally unable to comprehend; but the whole bill, from beginning to end, is a trumpery, disgusting farrago, and the most shameful insult to the medical profession I ever perused: it is, doubtless, intended to overthrow all the existing medical and surgical colleges and universities in the United Kingdom. But this, I trust, will not be easily accomplished. Let me beg every member of the Royal College of Surgeons in London to bear in mind the oath he took when he obtained his diploma, to "support to the utmost of his power the dignity and welfare of the College." The heads of the profession, the several members of the councils of the Royal Colleges, both of Physicians and Surgeons, throughout Her Majesty's dominions, will, I have no doubt, view the matter in its proper light, and pursue such course as will enable them to crush the filthy monster ere it breathe.

Having, sir, thus done what I conceive to be my duty, in expressing the faults of this bill, I beg leave to conclude, by subscribing myself

Your very obedient servant,
G. Harvey.

EIGHTEEN-PENNY VACCINATION.

To the Editor of the Medical Gazette.

Sir,

The Guardians of the Brentford Union having, on the 30th ult., addressed a circular to the resident general practitioners, inquiring whether they would vaccinate upon the terms stated in page 89 of the circular of the Poor Law Commissioners (viz. at *eighteenpence* per case), a meeting of such practitioners took place on the 9th inst.; and, to obtain the concurrence of some who were absent from the first meeting, a second was held yesterday. The result is, that of the thirty-three general practitioners residing within the Union, twenty-seven have subscribed the declaration, of which, at their request, I forward a copy for your notice or insertion; *one*,—though, as *a guardian*, disqualified from joining in an offer to contract,—is well known to be favourable to the higher charge, and the remaining five,—although by various causes prevented from signing,—are virtually pledged not to accede to the present terms of the Commissioners.

It is earnestly to be hoped that an example of such perfect unanimity will not be lost on the medical men of other Unions.

I am, sir,
Your very obedient servant,
Francis A. B. Bonney,
Hon. Sec. to the Meetings.

Brentford, Oct. 14th, 1840.

(copy.)

We, the undersigned Medical Practitioners, residing in the Brentford Union, do hereby declare our adhesion to the following Resolution, which was unanimously adopted at a meeting of Medical Practitioners residing in the said Union, on Friday, the 9th day of October, 1840, viz.:—

"Resolved that this Meeting consider that the sum of one shilling and sixpence is not a sufficient remuneration per case, under the Vaccination Act, recollecting that all classes may avail themselves of it; and that an answer be returned to the Board of Guardians, respectfully declining their offer, and at the same time proposing to undertake the duties at two shillings and sixpence per case.

(Here follow the 27 signatures.)

NORTH OF ENGLAND MEDICAL ASSOCIATION.

At the monthly meeting of the Council of this Association, held on Wednesday, Oct. 14th, the following resolutions were adopted unanimously:—

"That in the opinion of this meeting, the Medical Profession Bill of Mr. Warburton, M.P. is not suited to the wants of the community nor to the wishes of the members of the medical profession."

"That the Secretary be requested to communicate the foregoing resolution to the editors of the London medical journals, and to the Medical Associations of the United Kingdom."

WESTMINSTER MEDICAL SOCIETY.

This Society met for the first time this season on Saturday, the 17th, at the Exeter-Hall Rooms in the Strand. The meetings are to be continued every Saturday evening during the season, at the same place. It is not our intention to report the proceedings unless on extraordinary occasions.

TESTIMONIAL TO SIR B. BRODIE.

On Tuesday last, a meeting of the subscribers to the testimonial to Sir Benjamin Brodie took place in St. George's Hospital, Mr. Fuller in the chair. The secretary, Mr. C. Hawkins, read the report, stating that 343 subscribers had enrolled their names, and that the amount of subscriptions averaged £360. The committee recommended that the testimonial should be as lasting and public as possible, and came to the conclusion of suggesting to the meeting one which, while it marked their admiration of the talents and character of Sir B. Brodie, would also conduce to the advancement of the interests of the surgical profession; and with these objects in view they proposed for the concurrence of the meeting, that a die be made, having a profile of Sir Benjamin Brodie on one side, and an inscription on the reverse, from which a model might be taken to be annually awarded as a surgical prize, to be called "The Brodie Testimonial Prize," to be contended for by the whole profession, and that the distribution of the prize should be committed to the College of Surgeons in London, and that that body be solicited to undertake the task of awarding the prize, the amount and value of which would depend upon the amount of subscriptions.

On the motion that the report be received, it was moved, seconded, and, on a division carried, that the awarding of the prize should rest with the officers of St. George's Hospital; when a committee was appointed to carry the spirit of the report, with the amendment, into operation. The thanks of the meeting were then voted to the chairman.

FACULTY OF PHYSICIANS AND SURGEONS OF GLASGOW.

(From a Correspondent.)

It had long been a point in dispute whether the holders of the degrees of "Doctor in Medicine" and "Master in Surgery," were entitled to act as general practitioners within the counties of Lanark, Renfrew, Ayr, and Dumbarton, without submitting to an examination and being licensed by the Faculty of Physicians and Surgeons of Glasgow. The University of Glasgow maintained the affirmative, contending that their Degrees conferred such title to practise in any department of the healing art within these bounds as well as elsewhere; but the Faculty, whilst they admitted that holders of the Degree of Doctor in Medicine from *any* famous university conferred the right of practising as a *physician* every where, asserted that, in the terms of a Royal Charter, granted to their predecessors and confirmed by act of parliament, they were constituted a corporation, with the special charge of the districts above referred to, to take care that no unfit person should practise the healing art therein; that it was their duty to call all practitioners within these counties before them; if acting as physicians to cause them to exhibit their testimonials; and if acting as general practitioners to cause them to submit to an examination, and if found qualified, to confer their license accordingly.

After a lengthened litigation before the Supreme Court in Scotland, and latterly before the House of Peers, it was definitively settled on the 7th of August last, by the award of that right honourable House—

1. That the Faculty of Physicians and Surgeons of Glasgow are a legally constituted corporation, agreeably to their charter from the crown in 1599, duly ratified by parliament in 1672.

2. That as such the Faculty have power to debar from the practice of surgery all persons who have not submitted to examination before them, and who have not obtained their license to practise.

3. That the Degree of Doctor of Physic from a University where medicine is taught, does not enable the graduate to practise surgery within the bounds specified in the charter.

4. That in like manner a testimonial of skill in surgery, from a university where surgery is taught, or the Degree of Master in Surgery recently introduced into the University of Glasgow, does not entitle the possessor to practise surgery within these bounds.

The Lords of Sessions summed up their decision in these four very distinct propositions, and the House of Peers confirmed this decision.

The Faculty of Physicians and Surgeons of Glasgow, therefore, are now confirmed by the highest legal sanction in the empire, in their rights as a corporation, having jurisdiction over the counties of Lanark, Renfrew, Ayr, and Dumbarton, and as bearing a Commission, under royal and parliamentary authority, to debar, by fine and interdict, all persons attempting to practise medicine within these bounds without shewing proper testimonials, or to practise surgery without their examination and license; which examination cannot be legally dispensed with or superseded on account of the persons so attempting to practise surgery being holders of one or other of the academic honours of Doctor in Medicine or Master in Surgery, or being possessed of any other diploma, certificate, or testimonial whatever.

ANNUAL EXAMINATION OF THE CANDIDATES FOR THE BOTANICAL PRIZES,

GIVEN BY THE COMPANY OF APOTHECARIES.

Examination paper, October 14th, 1840.
Hours from 10 A.M. till 10 P.M.

1. Describe the elementary organs of plants, with their modifications.

2. State the opinions of Schleiden with respect to the chemical composition of the elementary organs, and of the subsequent deposits.

3. What are the special properties of cellular tissue?

4. What is the structure of the bark?

5. What are the uses of the bark?

6. Describe the usual structure of the stem of an exogen: the structure of the stem of *Phytocrene gigantea:* of the Coniferæ: the Cycadaceæ: and of arborescent ferns.

7. How is wood formed?

8. What are the functions of the leaves?

9. Name any instance in which spiral vessels are supposed to perform the function of transmitting fluids.

10. Describe the *general* and *special* circulation of the sap.

11. What is the cause of the motion of the sap?

12. What are buds; and in what do they differ; firstly, according to their situations; and secondly, according to their contents.

13. Describe the organs which the buds evolve; name each stage of metamorphosis; and state which parts of the several organs are analogous to each other.

14. How is the ovule developed in Santalaceæ and Loranthaceæ?

15. What is the structure of the embryo?

16. What are the elementary substances which are met with in plants?

17. What are the conditions necessary for the germination of a seed, and the physical and chemical changes which accompany that process?

18. What alterations take place in the ripening of fruits?

19. What are the names and essential characters of the classes of the vegetable kingdom, arranged according to the natural system?

20. State the essential characters and medical properties of the following natural orders:—

1. Ranunculaceæ and its sub-orders. 2. Umbelliferæ and its sub-orders. 3. Myrtaceæ. 4. Cucurbitaceæ. 5. Passifloraceæ. 6. Guttiferæ. 7. Sapindaceæ. 8. Euphorbiaceæ. 9. Rutaceæ. 10. Melanthaceæ. 11. Amaryllidaceæ. 12. Smilaceæ. 13. Filices. 14. Fungi. 15. Algæ.

21. Give the generic characters of *Conium, Œnanthe, Æthusa, Solanum, Nicotiana, Atropa, Datura,* and *Hyoscyamus.*

22. Describe fully (in Latin) the plants numbered 1, 2, 3, 4; and refer them to their proper natural orders.

[The plants were—1. Lechenaultia formosa. 2. Erica taxifolia. 3. Crowea latifolia. 4. Westringia longifolia.]

N. B. WARD.

METEOROLOGICAL JOURNAL.

Kept at EDMONTON, *Latitude* 51° 37 32" N.
Longitude 0° 3' 51" *W. of Greenwich.*

Oct.	THERMOMETER		BAROMETER	
Wednesday 14	from 30	to 55	30·30	to 30·22
Thursday . 15	33	55	30·15	30·03
Friday . . 16	38	57	29·86	29·81
Saturday . 17	43	55	29·74	29·92
Sunday . . 18	45	55	29·94	29·86
Monday . . 19	48	56	29·63	29·79
Tuesday . 20	42	52	29·99	29·04

Wind S.W. on the 14th; N.W. on the 15th; W. on the 16th; N.W. and N.E. on the 17th; S.W. on the 18th; W. on the 19th; and N.W. on the 20th.

On the 14th and following day generally clear; the 16th and three following days cloudy, with rain; the 19th, morning cloudy, with rain, otherwise clear; the 20th, generally clear.

Rain fallen, ·115 of an inch.

CHARLES HENRY ADAMS.

NOTICE.

DR. FRANZ's paper is in type, but its insertion has been unavoidably postponed.

ERRATA.

IN Dr. Prichard's Lecture, page 11, *for* Mr. Carlyle *read* Mr. Carmichael.

On the wrapper of last No. Mr. Hall was styled Surgeon to the Manchester Infirmary by a mistake of our printer.

WILSON & OGILVY, 57, Skinner Street, London.

THE
LONDON MEDICAL GAZETTE,
BEING A
WEEKLY JOURNAL
OF
Medicine and the Collateral Sciences.

FRIDAY, OCTOBER 30, 1840.

LECTURES ON THE PRINCIPLES AND PRACTICE OF PHYSIC,

Delivered at King's College, London,

By Dr. Watson.

Lecture VI.

Causes of disease: distinction between predisposing and exciting causes. Enumeration of causes, as connected with the atmosphere—food and drink—poisons—exercise—sleep—mental and moral conditions—hereditary tendencies — malformations. Temperature. Effects of heat and of cold.

The *causes of disease* are commonly arranged under three heads—as predisposing, exciting, or proximate.

Of these three, the last mentioned, or the *proximate* cause, is nothing else than the actual disease itself—the actual condition of that part, or of those parts of the body, from which the whole train of morbid phenomena essentially flows. When we know those parts, and that condition, we name the disease accordingly. When we do not, we call the complaint after the group of symptoms by which it is characterized. The term proximate cause is therefore an unnecessary term:—it is moreover, to learners, a puzzling term, and tends to give to the consideration of disease a scholastic and repulsive aspect. I wish you to get into the habit of contemplating the whole science of medicine under its simplest and plainest form. I am sure we may very well abolish the term proximate cause altogether; and having now given an explanation of its meaning, for your guidance when you meet with it in books, I shall never employ it, in these lectures, except perhaps in a quotation, again.

In strictness of language, one event is held to be the cause of another event which follows it, when the first being absent, the second never occurs—and the first being present, the second never fails to occur, unless some other event intervene to prevent it. But the causes of disease will not bear to be spoken of after so strict a fashion. We perceive that certain external circumstances *(quæ nos circumstant)* often precede such and such diseases; and that the diseases seldom happen when these circumstances are not previously observable; and we begin to regard those circumstances as exciting causes of those diseases. We find that the diseases are much more frequent among persons known to have been exposed to the agency of the presumed causes, than among persons who are not known to have been so exposed. The evidence at first is presumptive only. But the more uniform their conjunction, and the more rare their disjunction, the more confidently do we ascribe to the two consecutive events the relation of cause and effect. By this kind of observation a number of exciting causes of disease have been clearly established to be such.

But recollect, certain circumstances being present, such and such diseases do *often*, not *always*, follow. Some persons are more liable to be affected by the operation of many of these ascertained causes than others are; and the same persons more liable to be influenced by the same cause at one time than at another. And special circumstances, existing in particular cases, will be found to account for this variable operation of known exciting causes upon the bodily health. These special circumstances may properly be called *predisposing causes*. Thus, of a score persons exposed to the same noxious influence—to the combined influence of wet and cold during a shipwreck for example—one shall have catarrh, another rheumatism, a third pleurisy, a fourth ophthalmia, a fifth inflammation of the bowels, and fifteen shall escape without any illness at all. A man shall do that with impunity to-day, which shall put his life in jeopardy when he repeats it next week. It is not therefore the exciting cause *alone* that in all cases determines the disease. Something—nay much—or all—will frequently depend upon the *condition of the body* at the time when the exciting cause is applied:—and this condition of the body, which we call *predisposition*, will depend upon circumstances then or previously in operation—and these circumstances are, in our language, *predisposing causes*.

Do not confound, as many seem to do, the predisposition with the circumstances creating it. The predisposition is a certain state of the body—the predisposing cause is what produces that state. The *cause* of the predisposition is the *predisposing cause* of the disease. A predisposing cause may therefore be *defined* to be anything whatever which has had such a previous influence on the body as to have put it in a condition of greater susceptibility to the exciting cause of the particular disease.

It is sometimes difficult, or impossible, to say of a given cause whether it ought to be ranked among the exciting or the predisposing causes: whether it has prepared the system for being affected by some other agent, or whether it has itself produced the disease; but for the most part the distinction is real—and sufficiently well marked—and of great importance to be attended to.

Disease may sometimes be averted, even in despite of strong and fixed predisposition to it, if we know, and can guard against the agencies by which it is capable of being excited. A man may inherit a proclivity to consumption, yet fortunately escape that fatal complaint by timely removal to a warm and equable climate, and by other suitable precautions; that is, by avoiding whatever tends to rouse the dormant tendency into action. On the other hand, disease may often be warded off, notwithstanding the presence and application of its exciting cause, when its predisposing causes are ascertained and can be prevented. In proportion as the body is weakened or exhausted, it yields more readily to the pernicious influence of contagion, or malaria; but by obviating all causes of debility, and fortifying the system, we walk with comparative security amid surrounding pestilence.

Diseases sometimes occur, when no exciting cause, when no cause at all, has been apparent. All that we can say of such cases (which are not, however, very frequent) is, that the causes have not hitherto been discovered.

Now the ascertained causes of disease are many and various. Whatever ministers to life, health, or enjoyment, may become the medium, under changing circumstances, of pain, disease, or death. The atmosphere, in which we are constantly immersed, is full of dangers. Both the organic and the inorganic world of matter around us abound in poisons; they lurk in our very food, which becomes pernicious when taken in excess, or when it consists of certain substances, or certain admixtures of substances: so that there really was much truth, as well as some humour, in the startling motto to Mr. Accum's book on adulterations—"*There is death in the pot.*" Our passions and emotions also, nay even some of our better impulses, when strained or perverted, tend to our physical destruction. The seeds of our decay are within as well as around us.

Let us enumerate, however, a little more particularly, the various known sources of disease, with the view of making, afterwards, a few practical comments upon some of them.

Chemical and mechanical injuries. — I shall pass over, in this enumeration, nearly all chemical and mechanical injuries—inasmuch as these belong to surgery.

Atmospheric influences.—Under the head of atmospherical causes, we shall find that those varieties in the state of the air which proceed from mere differences of degree in its natural qualities may be productive of disease. Such are—extremes of heat and cold; sudden variations of temperature; excessive moisture or excessive dryness; different electric conditions; differences of pressure, as measured by the barometer; a deficiency of light.

Again, the atmosphere may be a source of disease in consequence of its being loaded with impurities. Malaria—contagions of various kinds—and noxious gases in general, may be considered as so many poisons.

Nutriment.—Under the head of *nutriment* we may place the use of food of which the quality is bad and hurtful; this cause also strictly belongs to the class of poisons:—again, an insufficient supply of healthy food:—a still more common cause is *excess* in *eating* and *intemperance* in *drinking*.

Poisons.—The numerous *poisons* which are not comprehended under either of the foregoing heads are also prolific sources of disease.

Employments —Another great class among the causes of disease might be formed by considering together the influence of various *trades and avocations* which are directly injurious to the health of those who pursue them.

Exercise.—We know, by ample experience, that a certain amount of bodily *exercise* is essential to good health. We see the evil consequences of much overstepping that amount, in the deformities and disorders that result from too severe and continued labour. But a much more numerous train of complaints follows the opposite state—that in which, from indolence, or from necessity, but *little* exercise is used.

Sleep.—Excessive indulgence in *sleep* on the one hand, and long continued want or interruption of repose on the other, are apt to give rise to serious maladies.

Mental and moral causes.—Very many diseases have a mental origin. Excessive intellectual toil—the domination of violent passions—the frequent recurrence of strong mental emotions—vicious and exhausting indulgences,—each and all will sap the strength, and grievously impair the health of the body: and perhaps there is no cause of corporeal disease more clearly made out, or more certainly effective, than a continuance of mental anxiety and distress.

Hereditary tendencies to disease, and malformations.—When we add to this catalogue of the sources of disease all those morbid tendencies which are *hereditary*—and those which flow from original *malformation*, and are congenital—we shall have a tolerably complete list of the manifold dangers to which our mortal frames are continually liable.

There are several points of view under which the consideration of these causes of disease might be shown to be interesting. We might enquire, for example, which of them are commonly predisposing, which exciting causes; and what are the circumstances which are found to render the same agent at one time merely a predisposing, and at another time an exciting cause.

We might also separate, with some advantage, those causes of disease to which the human body is often and necessarily exposed, from those which consist in agencies that are of local or temporary existence only. But without multiplying these artificial distinctions, I shall take occasion to advert to them either when speaking more in detail of particular causes, or when speaking of the disorders they have produced.

In our investigations into the causes of disease, great caution is necessary in order to avoid being misled by individual cases. The circumstances capable of influencing the bodily health are so various—so many of them are apt to be in operation at the same time—and so little power have we of excluding them, one after the other, so as to ascertain the exact efficacy of each—that our observations respecting their relative or their actual effects are open to much fallacy. We endeavour to escape this source of mistake by repeating and multiplying our observations. But it is by tracing diseases as they affect considerable masses of men, placed as nearly as possible under the same external circumstances, that we gain the surest and most satisfactory evidence in respect to the causes of disease. And hence it is that the experience of those medical men who are employed in our fleets and armies is so valuable. Dr. Alison has well remarked that all the circumstances of the whole number of men whose diseases fall under the notice of military and naval practitioners are, in many respects, exactly alike: the men are generally healthy adults in the first instance—the circumstances in which they are placed are thoroughly known to the observer—and indeed are often to a certain degree at his disposal; they are often suddenly changed also—and changed sometimes as to one portion of the whole mass of individuals, while they remain unchanged as to another portion: so that his opportunities of observation partake in some measure of the nature of experiments, and being made upon a large scale, they are especially interesting and conclusive. In point of fact a great deal has been learned, with absolute certainty, upon this subject.

Hitherto I have simply *enumerated* the principal causes of disease:—but conceiving a bare enumeration of this kind to be of but little use, I shall enquire somewhat more nearly into the nature and mode of operation of several of them *now*: of others I prefer to speak in connexion with the particular diseases to which they give rise.

You will not consider the enquiry superfluous. To know the cause of a disease is sometimes to be able to *cure*, often to be able to *prevent* it. In some cases the cause is beyond our power, but an acquaintance with its nature may teach us how to moderate or to remedy its consequences. There are many diseases also over which medicine has very little control, but the causes of which, when ascertained, may be avoided, or extinguished. Such causes, when they do not happen to be removable by individual efforts, are often susceptible of extinction by the united measures of a community. And for this reason it is very desirable that correct opinions respecting the causes of disease should be widely diffused among the public;—and there is no way in which information of this kind is so likely to be made generally known, as by communicating it to medical students who are about to scatter themselves in all directions over the face of the land.

I shall proceed, then, in the first place, to the consideration of *heat and cold*, as external agencies capable of producing disease.

Temperature.—The range of atmospheric temperature compatible with human life is very considerable. Its limits are probably just those extremes of heat and cold that belong to the lower strata of the air in the different parts of the planet on which man is destined to exist. Under the burning sunshine of the tropics, and amid the profound frost of the polar regions, we alike find human dwellers. These different degrees of external temperature impress indeed peculiar physical characters upon those who are subjected to them, but they do not of necessity extinguish life, nor even cause disease. It requires more care, however, to preserve life under intense cold than under intense heat. In some parts of India the temperature ranges for a long time together from 80 to 100, and even 110° of Fahrenheit's thermometer: I believe it sometimes reaches 120°. We can form some estimate of this heat by remembering the oppressive effect of the lowest of these temperatures—that of 80°—to which the thermometer sometimes rises in this country in the hot weather of summer. But these tropical climates are very thickly peopled. In the arctic countries, on the other hand—in the northernmost parts of America for example, where the sun appears above the horizon for a short part of the year only, and where the thermometer sinks to 40 or 50° below zero—we still find inhabitants indeed, but they are few, and thinly scattered. This mainly depends, no doubt, upon the scanty supply of human food in those parts of the world; but something also is to be ascribed to the depressing influence of extreme cold upon the vital powers. Indeed the deficiency of human food is itself owing to the restraining effect of a low temperature upon organic life. Under a degree of temperature a little greater than that at the equator—or a little less than the lowest around the poles—it seems probable that man would soon perish. And in this fact we have one striking example of the adaptation of external nature to the physical constitution of the human race.

But, *for a short time*—and *under certain circumstances*—man is capable of enduring a very much higher degree of heat than the open and general atmosphere ever attains even in the hottest portions of the earth. Whether he could continue to exist, even for a little while, under a much more intense cold than ever occurs naturally on the surface of the globe, is more questionable.

External effects of heat.—It was long believed that the human body could not be safely exposed, even for a short time, to a degree of heat much exceeding that which is met with in hot climates. This belief, which we now know to have been erroneous, was strengthened by the result of some experiments made by the celebrated Fahrenheit himself, and related by Boerhaave in his Chemistry. Some animals were shut up in a sugar-baker's stove, where the mercury stood at 146°. A sparrow died in less than seven minutes, a cat in rather more than a quarter of an hour, and a dog in about twenty-eight minutes. The *noxious air* of the stove had probably more to do with the speedy deaths of these animals, than the heat. The truth, upon this subject, may be said to have been discovered by accident. In the years 1760 and 1761, MM. Duhamel and Tillet were appointed to devise some means of destroying an insect which consumed the grain in the province of Angoumais in France. They found that this could be done by subjecting the corn, and the insects contained in it, in an oven, to a degree of heat great enough to kill the insect, but not so great as to hurt the grain. In order to ascertain the precise heat of the oven, they introduced into it a thermometer placed upon the end of a long shovel. The mercury, when the thermometer was withdrawn, was found to indicate a degree of heat considerably above that of boiling water. But M. Tillet was aware that the thermometer had sunk several degrees as it was drawn towards the mouth of the oven. While he was puzzled to invent some way of determining more exactly the actual degree of heat, a girl, who was one of the attendants on the oven, offered to go in, and to mark with a pencil the height at which the mercury stood. And she did enter the oven, and remained there two or three minutes, and then marked the thermometer at 100° of Reaumur, which nearly equals 260° of Fahrenheit. M. Tillet then began to express some anxiety for the safety of the girl, but she assured him that she felt no inconvenience, and remained in the oven ten minutes longer, during which time the mercury reached the 288th degree of Fahrenheit's scale—which denotes 76° of heat above that of water when it boils. When she came out her complexion was considerably heightened, but her respiration was by no means quick or laborious. This experiment was afterwards repeated. Another girl remained in the oven as long as the former had done, at the same temperature, and with the same impunity. Nay, she even breathed, for the space of five minutes, air heated to about 325° of Fahrenheit—or 113° above that of boiling water.

The publication of these facts naturally excited the curiosity of scientific men, and other experiments were soon instituted. Dr. Dobson, of Liverpool, and several other persons with him, shut themselves up in the sweating room of the public hospital there, the air having been heated till the quicksilver stood at 224° of Fahrenheit. They did not experience any oppressive or painful sensation of heat. Dr. Fordyce and Dr. Blagden made some remarkable trials of the same kind. They entered rooms artificially heated to a very high degree, sometimes naked, and sometimes with their clothes on, and bore the extraordinary temperature of 240°, and even 260°, for a considerable time, with very little inconvenience. In all these experiments it was found that the animal heat, as ascertained by thermometers placed under the tongue, or grasped in the hand, was scarcely increased at all; and the respiration but little affected: but the pulse was very much quickened. The frequency of Dr. Blagden's pulse in one instance was doubled. You may read a detailed account of these experiments in the Philosophical Transactions; but to give you a more lively notion of the degree of heat to which the bodies of these gentlemen were exposed, I may tell you that their watch-chains, and other pieces of metal about them, became so hot that they could scarcely be touched; when they breathed upon the thermometer, the mercury immediately *sunk* several degrees; each act of expiration produced a pleasant feeling of coolness in the nostrils, and they cooled their fingers by breathing upon them. In and by the same heated air which they respired, eggs were roasted quite hard in twenty minutes, and beef-steaks were dressed in thirty-three minutes; and when the air was blown upon the meat by means of bellows, it was sufficiently cooked in thirteen minutes.

It is ascertained, then, beyond all doubt, that the human body is capable of sustaining these very high degrees of temperature, *for a short time*, without detriment.

Facts of this kind may, perhaps, appear to you rather curious than useful. Man is never submitted to any natural heat of the air even approaching towards that to which the authors of the experiments I have been describing voluntarily exposed themselves. But a knowledge of extreme cases always tends to throw light upon those that lie *between* the extremes; and the direct results arrived at in these philosophic enquiries are not barren of practical utility to members of our profession. It is not long ago that a man was found almost dead in an oven: he expired a quarter of an hour after he was taken to one of the Borough hospitals; and an inquest was held upon his body. The newspaper report of the case (which is the only one I have seen) states the temperature of the oven to have been about 120°—a candle was melted by it in half a minute. Now prior to the trials just mentioned exposure to such a degree of heat would have been held a sufficient cause of death. We now know (and it would be discreditable if we could not support our opinion in a court of law, or before a coroner, by a reference to authentic facts) that something else must have concurred in extinguishing life: and, in fact, it turned out that the man was *drunk* when he went into the oven.

But what are the effects upon the human frame of a high, yet less excessive, temperature of the air?

One very constant effect of heat is that of stimulating the *organic functions* of the body. We have seen that the temporary application of great heat accelerates remarkably the action of the heart: the pulse was uniformly found to be much increased in frequency in the persons who made trials of their powers of endurance in heated rooms. We have evidence to the same purpose in the annual changes that take place in the vegetable kingdom at a given place, the summer renewing its foliage, the winter checking and repressing it; and still more in the superior luxuriance of vegetation in warm climates as compared with cold. And the same observation applies to those functions which animals possess in common with plants. Towards the poles both man and the lower animals are smaller than at the equator. Linnæus remarks that the hares, partridges, and other animals which inhabit the northern climes, are considerably smaller in size than the same species in more southern countries. And Mr. Tooke, in his View of Russia, observes, "As we approach nearer to the north pole, both the animal and vegetable productions of nature become more and more stunted. The ordinary stature of the Samoyedes seldom exceeds four or five feet, and their whole exterior corresponds with their dwarfish size." The bodily stature in hot climates does not, I believe, exceed that which is proper to the temperate zone; but it is notorious that the body grows more rapidly, and that the sexual functions are more early developed, in proportion as we approach the equator: and this is to be attributed to the stimulus of heat acting upon the organic functions, and upon the circulating system in particular.

On the other hand, and in some sort as a contrast with this, we may observe that considerable heat, when applied for some time together, has a sedative or depressing influence upon the *animal functions, i. e.*, upon the nervous system, causing languor and lassitude—want of energy—a disinclination to exertion, both bodily and mental.

Under favourable circumstances, and where due precaution is exercised, it is probable that a very high degree of natural temperature of the atmosphere may be borne with impunity. Sir James M'Grigor informs us (in his account of the passage of the army in 1801 from India to Egypt) that during the march over the sandy desert of Thebes, where the heat was *uniform*, though the thermometer in the soldiers' tents was as high as 118°, the health of the troops was equal to that which they had enjoyed in any former period in India.

But there are some forms of disease which are distinctly traceable to heat as their cause.

The effect of hot weather in promoting the cutaneous perspiration is notorious. By the same influence the hepatic function is rendered more active. Dr. James Johnson first, I think, distinctly pointed out the sympathy or consent that obtains between the liver and the skin, under varying conditions of external warmth. Whatever may be the explanation of the fact, experience has taught us that a high atmospheric temperature, when its operation is continued for some time, has a marked influence upon the liver, increasing the quantity of bile that is secreted, and altering its sensible qualities; and this disturbance of function is not unfrequently followed by inflammation of the gland itself. In this country we witness, almost annually, the effects of a succession of sultry weather, in those attacks of vomiting and diarrhœa which are so common towards the latter end of summer, and in the autumn, especially when the season happens to have been unusually hot, and which result, apparently, from the excessive quantity or the morbid state of the bile. The English cholera (a totally different disorder from that which has of late years been called, most improperly, *the* cholera) is, as you know, so frequent and general in some years, as to be fairly considered and termed an epidemic disease. In tropical climates the same morbific operation of external heat is still more conspicuous; leading not only to violent disorder of the stomach and intestines, with the evacuation of large quantities of vitiated and acrid bile, but also to acute inflammation of the liver going on to suppuration, and the formation of large abscesses. These last diseased conditions are extremely rare in this latitude. The yellow complexions of those who return to England after a long residence in India are to be attributed to that disordered state of the liver, and of its functions, to which such persons are proverbially subject, and which has, in them, been brought on by the influence of a hot atmosphere, operating for a long space of time together. Hepatic affections, acute or chronic, are among the chief diseases to which Europeans, at least, are liable in that climate.

We have here an example of the distinction I wish you to notice between predisposing and exciting causes. The heated atmosphere stimulates unduly the secreting function of the liver. Now a secreting organ is never so apt to be affected by any exciting cause of inflammation as when the process of secretion is going on. This law, which I mention by anticipation, depends, no doubt, on the increased afflux of blood that accompanies the act of secretion. The excessive activity of the hepatic function constitutes thus a predisposition to inflammation of the liver. The hot atmosphere, which creates this predisposition, holds the place of a predisposing cause in respect to the inflammation that ensues; but the exciting cause is exposure to cold: one of the most common and best ascertained exciting causes of inflammation in general. You are not to imagine that there can be no such thing as exposure to cold in a climate where the temperature of the air is habitually above 80°. Dr. J. Johnson, in his book on Tropical Climates, observes that on the coast of Coromandel the temperature is steady by day, and the nights are hot; but yet, he says, nothing is more common than *exposure to cold* in this place. The European soldier or sailor, after the heat occasioned by his employments in the day, strips off his clothes, and lies opposite a window or port, his shirt wet with perspiration, to enjoy the sea breeze at night. And the same author tells us that the application of cold after or during perspiration commonly produces an attack of hepatitis in some one of its various forms. Now the effect of that kind of exposure here described does not depend upon the *actual* temperature, but upon the *sensation* that is produced, and the sensation depends upon the *relative* temperature; and there can be no doubt that, under the circumstances mentioned by Dr. Johnson, a strong sensation of cold would be occasioned, even by a sea breeze as warm as 80°, or warmer. Changes of temperature seem to be as readily felt at one part of the thermometric scale as at another, and in whichever direction they take place. Dr. Walsh states that while sailing along the coast of Brazil, after having been long accustomed to a temperature of 72°, a strong breeze set in from the sea, and the thermometer fell to 61°; (*i. e.*, to what we should here call temperate); "but," he says, "the sense of cold from the sudden transition of temperature was quite painful. After bearing it for some time shivering on deck, it became intolerable, and we all went below, put on warm clothing, and dreadnoughts,—and again appeared with thick woollen jackets and trowsers, as if we had been entering Baffin's Bay, and not a harbour under one of the tropics."

It is interesting to compare this statement with Dr. Parry's account of a change of temperature at the opposite extreme of the scale, and in the other direction. Having previously said that the thermometer had fallen to 13° below zero in the night of the 21st of October, he goes on thus:—"The wind veering to the south-east on the 24th and 25th, the thermometer gradually rose to 23°. I may possibly incur the charge of affectation in stating that this temperature was much too high to be agreeable to us; but it was nevertheless the fact, that every body felt and complained of the change. We had often before remarked that considerable alterations of the temperature of the atmosphere are as sensibly felt by the human frame at a very low part of the scale as in the higher. The difference consists only in this, that a change from —40° upwards to about zero is usually a very welcome one; while from zero upwards to the freezing point, as in the instance just alluded to, it becomes, to persons in our situation, rather an inconvenience than otherwise."

Besides the more gradual effects of great heat, direct or indirect, upon the human body, it sometimes operates distinctly as an *exciting* cause, and gives rise to more sudden attacks of illness. Persons who are exposed to the direct beams of a hot sun, especially during any labour or active exercise, are apt to be affected by what is called the sun-stroke, the *coup de soleil*, insolation: they fall down insensible, and often die in a very short time. This disorder is common among troops in long marches in India. It is a complaint of which the cause has long been known by the inhabitants of hot climates. There is a case of it related in the Bible. "And Manasses was her husband, of her tribe and kindred, who died in the barley harvest. For as he stood, overseeing them, and bound sheaves in the field, *the heat came upon his head, and he fell on his bed, and died* in the city of Bethulia."

Pathologists are not agreed respecting the intimate nature of this distemper; nor about the manner in which it destroys life. Some regard it as a sort of apoplexy; and hold that death takes place in the way of coma. But the most approved remedies of apoplexy —bleeding and other evacuations—have not proved successful in relieving it. The natives of India prefer the pouring of cold water upon the head to every other curative measure. Our army surgeons also found that stimulants—rum and water, for instance —answered better than depletion. I have never seen this affection, but I should conjecture that it is more akin to the state we call concussion than to true apoplexy. It would appear that the sun's rays act upon the brain like a shock. The nervous system is suddenly and extensively influenced, and the heart's movements arrested, as in syncope. One of Sir B. Brodie's experiments is in favour of this opinion. He placed a rabbit in a basket in an oven the temperature of which was not more than 150°, and it died in a few minutes without any apparent suffering. The heart was afterwards found distended with blood, on both sides, as after death by asthenia.

Great heat tends also to the production of certain cutaneous diseases: it is said that few Europeans escape, on their first settling in tropical climates, an eruption of pimples, attended with almost intolerable itching and prickling, and lasting for some weeks. It is called in India *the prickly heat*.

Effects of external cold.—Before considering that most prolific source of disease which is familiar to the commonest observation in sudden *transitions* of temperature, let us enquire what are the ascertained effects of extreme cold upon the human frame. Of course I use the term cold in its popular acceptation, as if it were something positive, instead of signifying the mere privation of heat. It is much more convenient to speak of it in this way, and there is no risk of your being misled by my doing so.

Now this inquiry is of more practical interest to us than that which is concerned with the immediate effects of extreme heat. Even in this climate medical men are not unfrequently called upon, in cases of injury or death produced by intense cold, either to remedy the morbid conditions it has caused, or to explain the mode and probability of its operation in extinguishing life.

The effects of cold, as might well be imagined, are in many respects the direct opposites of the effects of heat. When its application is continued, it acts as a sedative upon the organic functions both of animals and of plants. This appears from the shrinking of the external parts: the superficial arteries become unable to transmit the blood in the usual quantity through the integuments. Hence the skin becomes pale, and contracting round the miliary glands and roots of the hair, exhibits a roughness which is compared to that of the skin of a plucked goose, and is technically called *cutis anserina*. By the same contraction of the smaller vessels, and diminished circulation, the extreme and projecting parts are diminished in size. Thus, rings which are tight on the fingers while the body is warm, drop off in cold weather—and even the shoes fall from the feet during extreme exposure. The heart and the whole arterial system becomes weak. I have already, when speaking of the contrasted operation of heat, illustrated the depressing influence of a low atmospheric temperature upon the organic functions, by referring to the dwarfish size of both men and the lower animals, as well as of plants, in cold regions. We have evidence of the same fact in the slow development of the functions, and particularly of the sexual functions, in cold climates as compared with hot; and in the winter torpor of certain animals, which is very analogous with the state of trees and shrubs in that season.

I need not tell you that to judge of the effects of mere coldness of the atmosphere we must take the case of the atmosphere *at rest*. The air is a bad conductor of caloric, and for that reason, a much lower, as well as a much higher degree of temperature, can be borne when it is in a state of quiescence, than when fresh portions of it are perpetually brought into contact with the surface of the body by currents of air. "With the thermometer," says Captain Parry, "at —55°," (a most fearful degree of cold you will observe, 55° below zero, *i. e.* 87° below the freezing point) "with the thermometer at —55°, and no wind stirring, the hands may remain uncovered for ten minutes or a quarter of an hour without inconvenience; while with a fresh breeze, and the thermometer nearly as high as zero, few people can keep them exposed so long without considerable pain." And speaking in another place of the cold, when the thermometer was 49° below zero; 9 or 10°, that is, below the point at which mercury freezes; he says, "The weather being quite calm, we walked on shore for an hour without inconvenience, the *sensation* of cold depending much more on the degree of wind at the time, than on the absolute temperature of the atmosphere as indicated by the thermometer. In several of the accounts given of those countries, in which an intense degree of natural cold is experienced, some effects are attributed to it which certainly did not come under *our* observation in the course of this winter. The first of these is the dreadful sensation *said to be produced in the lungs*, causing them to feel as if torn asunder when the air is inhaled at a very low temperature. No such sensation was ever experienced by us, though in going from the cabin into the open air, and vice versâ, we were constantly in the habit, for some months, of undergoing a change of from 80° to 100°, and in several instances 120° of temperature, in less than one minute: and what is still more extraordinary, not a single inflammatory complaint (beyond a slight cold, which was cured by common care in a day or two) occurred during this particular period."

But when the cold air is in motion, in other words, when there is wind, so that fresh portions of cold air are brought, in succession, in contact with the surface; or when it is accompanied with moisture, or occurs under other circumstances favourable to its operation, and to be spoken of more particularly presently, then cold of a much inferior degree of intensity may very speedily occasion partial or total death. By partial death I mean the loss of vitality in certain parts of the body only—the ears, nose, fingers, toes, and feet. The parts thus affected are said to be frost-bitten: and the mode of managing such accidents falling within the province of surgery, I shall confine my remarks almost entirely to the case where general death—death in its full and ordinary meaning, is either brought about, or impending, in consequence of exposure to cold.

One of the earliest effects of extreme cold upon the system at large has been said to be a remarkable and overpowering drowsiness. But I believe you will find that most or all of the persons in whom this torpor has been noticed had not only been exposed to severe cold, but had been using also a great deal of exercise: and perhaps the drowsiness ought to be ascribed, in some measure at least, to that exercise. They who attribute it to the cold alone, explain the comatose state in this way. They say that the chilling of the surface and extremities drives the blood inwards, causes it to accumulate internally, and increases the flow of blood towards the head. One thing, however, is certain, viz. that drowsiness is not a necessary consequence of exposure to severe cold, although it is a very common consequence. Dr. Currie, in his Medical Reports, gives a very interesting account of the shipwreck of an American vessel on the coast of Ireland, by which the greater part of the crew, fourteen in all, were kept for twenty-three hours in a great measure under water, the temperature of the water probably not exceeding 33 or 34° of Fahrenheit: and he states expressly that none of the men were drowsy, and that in no one of the three that perished was death preceded by sleep.

The overpowering tendency of cold when combined with fatigue, and perhaps under certain circumstances of intense cold alone, to induce sleep, was strikingly exemplified in what befel Dr. Solander among the hills of Terra del Fuego. The story, as given in Captain Cook's Voyages, is well known. Sir Joseph Banks and Dr. Solander had been out botanizing. On their return towards the ship, after various hardships, and after having travelled through swamps for a considerable way, the weather, which had been very fine, became gloomy and cold, with sudden blasts of piercing wind, accompanied by snow. Finding it impossible to get back to the ship before the morning, they resolved to push on through another swamp that lay in their way, into the shelter of a wood, where they might build a wigwam and kindle a fire. Mr. Banks (as he was then) undertook to bring up the rear. Dr. Solander, who had more than once crossed the mountains that divide Sweden from Norway, and who well knew that extreme cold, especially when joined with fatigue, produces a torpor and sleepiness that are almost irresistible, conjured the company to keep moving, whatever pain it might cost them, and whatever relief they might be promised by an inclination to rest. "Whoever *sits down*," said he, "will *sleep*, and whoever *sleeps*, will *wake no more*." Thus at once admonished and alarmed, they set forwards; but they had not gone far before the cold became suddenly so intense as to produce the effects that had been most dreaded. Dr. Solander was the *first* who found the inclination, against which he had warned others, irresistible, and he insisted on being suffered to lie down. Mr. Banks entreated and remonstrated with him in vain: down he lay upon the ground, although it was covered with snow, and it was with much difficulty that his friend kept him from sleeping. Richmond also, one of the black servants, began to linger in the same manner. When he was told that if he did not go on he would in a short time be frozen to death, his answer was that he desired nothing but to lie down and die. The Doctor said he was willing to go on, but that he must first take some sleep; although he had but a short time before told the company that to sleep was to perish. Mr. Banks and the rest found it impossible to carry them, and there being no remedy, they were both suffered to lie down, being partly supported by some bushes, and in a few minutes they fell into a profound sleep. Soon after some of the people who had been sent forward returned with the welcome news, that a fire was kindled about a quarter of a mile on the way. Mr. Banks then endeavoured to wake Dr. Solander, and happily succeeded; but, though he had not slept five minutes, he had almost lost the use of his limbs, and the muscles were so shrunk, that his shoes fell from his feet. He consented to go forward with such assistance as could be given him; but no attempts to relieve poor Richmond were successful. He, together with another black left with him, died.

In many instances, before this complete torpor comes on, intense cold has a curious effect upon the nervous system, blunting the sensations, and confusing the intellect, and giving to the person exposed to it the appearance of one intoxicated. It is very necessary that you should be aware of this, for there is too much reason to believe that poor wretches, who have been picked up by the constables in the streets at night, during periods of hard frost, have been supposed to be drunk, when, in truth, they were only stupefied by the cold. Such a mistake is most likely to be fatal to them: instead of receiving the attention and treatment proper for persons in their condition, they are liable to be laid aside, by themselves, to sleep off their supposed debauch, and the morning finds them corpses. It is not at all improbable that some of you may be called upon to investigate such cases: and as actual instances are more readily impressed upon the memory than any general description, I will read you a short history illustrative of what I have just been saying, from Captain Parry's Journal.

"John Pearson * * * had his hands severely frostbitten, having unfortunately gone without mittens, and with a musket in his hand. A party of our people, most providentially, found him, although the night was very dark, just as he had fallen down a steep bank of snow, and was beginning to feel that degree of torpor and drowsiness which, if indulged, inevitably proves fatal. When he was brought on board his fingers were quite stiff, and bent into the shape of that part of the musket which he had been carrying: and the frost had so far destroyed the animation in his fingers on one hand, that it was necessary to amputate three of them a short time after."

It is what immediately follows this, that I was desirous of pointing out to your attention.

"The effect which exposure to severe frost has in benumbing the mental as well as the corporeal faculties, was very striking in this man, as well as in two of the young gentlemen who returned after dark, and of whom we were anxious to make enquiries respecting Pearson. When I sent for them into my cabin, they looked wild, and spoke thick and indistinctly, and it was impossible to draw from them a rational answer to any of our questions. After being on board for a short time, the mental faculties appeared gradually to return with the returning circulation; and it was not till then that a looker-on could easily persuade himself that they had not been drinking too freely. To those who have been much accustomed to cold countries, this will be no new remark, but I cannot help thinking (and it is with this view that I speak of it) that many a man may have been punished for intoxication who was only suffering from the benumbing effects of frost; for I have more than once seen our people in a state so exactly resembling that of the most stupid intoxication, that I should certainly have charged them with that offence, had I not been quite sure that no possible means were afforded them on Melville Island to procure any thing stronger than snow-water."

When persons in this state are suffered to sleep, and the operation of the cold continues, they become less and less sensible to external impressions, until death closes the scene.

EXPERIMENTS
ON THE MOTIONS AND SOUNDS OF THE HEART.

BY THE LONDON COMMITTEES OF THE BRITISH ASSOCIATION FOR 1838-39, AND 1839-40.

EXPERIMENTS FOR 1839-40.

[Continued from page 156.]

Obs. XII.—In the second and older animal, which was prepared by injection of woorara, and in which, after establishment of artificial breathing, the left ribs were cut quite close to the mesial plane, so as to expose fully the apex in every motion*, after the pericardium was opened, the following results were obtained.

Section 1.—The hard substance (sole leather) weighted with lead, was applied to the heart, and the same result as in the former experiment obtained, viz. a sudden abrupt elevation or jerk upwards of the lead in systole, and a stroke against the stethoscope heard audibly at several yards, and the range of undulation or locomotion of the lead was about half an inch.

Section 2.—On opening the pericardium, the auricles and ventricles were acting as in the former observation, viz. the auricles first after the rest or pause, and the ventricles immediately after the auricles. No auricular sound was detectible. No distinct second sound heard. Heart acting hurriedly, and with varying quickness, but always above the healthy standard.

Section 3.—The motions of the ventricles very conspicuous, and as in last observation, viz. striking diminution of horizontal transverse, and of longitudinal diameters, and increase of transverse vertical diameter in systole, and in diastole increase of the two former diameters, and decrease of the last; and in systole the apex was raised, as was the whole body of heart, by an elevation of the central longitudinal axis, effected partly by the assumption of a globular form in the previously compressed central inferior surface, and partly by the visible protrusion of the previously depressed central superior surface of the ventricles.

So long as this observation lasted, both auricles seemed to act with equal vivacity; the right auricle being, however, snipped long after the ventricles had ceased, the blood gushed out only when the auricle contracted, and the hæmorrhage ceased nearly during the diastole of the auricle.

Section 5.—No other appearances observed in the veins than in the former experiments, viz. a slight diastole with the auricular systole, followed by a systole with auricular diastole.

Section 6.—In neither of the two preceding observations did the auricles and ventricles exactly alternate, but in each, whenever observation was carefully made, the auricular systole immediately preceded the ventricular, and the ventricular diastole preceded the pause or rest, which last was first interrupted by the abrupt auricular contraction.

Obs. XIII. and XIV.—July 15th. *Subjects*:—A donkey (about a twelvemonth old, prepared with woorara. Very little blood lost in opening; animal not healthy, and weak, so as to be ill able to walk before the operation; heart acted pretty well), and a dog.

Phenomena.—Donkey: Rhythm of motions; character of auricular actions; same of the ventricular; double friction between heart and pericardium normally; eccentric impulse felt all over ventricles in systole; motions of cava. Dog: Normal double frictions of pericardium, with other phenomena.

Section 1.—Rhythm of motions of the auricles and ventricles was as in former experiments. First, auricular systole, then immediately the ventricular systole without interval, and as if it were a continuation by undulation of the former motion.

Section 2.—Then the pause, during which the auricle and ventricle became each distended, and soft and flaccid; the former sliding its extreme margin downwards on the ventricle, to retract it suddenly again towards the sinus in systole; and the latter protruding its apex and sides, so as to be enlarged in every direction except that of the transverse vertical diameter, to retract both apex and sides in the following systole, and at the same to rise upwards in its central parts with an impulse.

Section 3.—Before opening pericardium the condition of that sac was carefully observed, and it was noted that while the pericardium remained stationary under all circumstances, the heart suffered much change in shape and size, so that there was in every part, and especially over the auricles, a to-and-fro motion of the cardiac pericardium, on the external layer of that sac; a friction in one direction in systole, and in the opposite in diastole.

Section 4.—The impulse before observed was obtained by the finger applied to any part of the ventricle in systole.

Section 5.—The cava observed, and a slight action noted, viz. a diastole, followed by a systole, the former with a wave-like sensation of motion from the heart downwards, and accompanying the auricular systole, and immediately preceding the ventricular.

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* The former was opened in the same way, and with the same effect.

Section 6.—The separator was introduced into the mitral aperture, and a murmur was heard, but the heart ceased too soon, owing to errors in the process of insufflation, to allow of the experiment being properly followed out.

Obs. XIV.—Same day a dog, small, and perhaps two years old, was poisoned with prussic acid, and then prepared as usual. The heart acted pretty well for nearly half an hour.

Section 1.—The stillness or inertness of the free pericardium, and constant succession of changes of shape and size in the heart, was carefully observed. The heart being, for the size of the animal, much larger than that of a donkey, the experiment was much less troublesome, from that cause as well as from the greater facility of manipulation of a smaller animal.

Every systole of the auricles produced a double friction, viz. one against the external layer of the pericardium, and one against the fundus of the ventricles, or periphery of the auricular orifices; and every diastole of course produced friction in the opposite directions; and every systole of ventricle produced friction longitudinally from apex to fundus, and transversely from side to side all round the body of the heart; while every ventricular diastole included friction in the opposite directions.

Section 2.—The rhythm of the heart's motions was as before, viz., 1st, the auricular systole; 2dly, immediately thereafter the ventricular, and without marked interval, but as if the latter motion were but a continuation of the former, by a sort of continued undulation; and 3dly, the pause consisting, first, of auricular diastole, and then including the immediately succeeding ventricular diastole, and interrupted first by the auricular systole.

Section 3.—Cava observed and motion noted, viz. a diastole followed by a systole, the former synchronous with the auricular systole, the latter immediately following.

Section 4.—The subclavian artery laid bare unintentionally for several inches, forming an arch more than two inches in length, and observed to lengthen without straightening in systole of heart, and to shorten slightly, but sensibly, in ventricular diastole.

Section 5.—As in every former distinct observation, the sensation of impulse perceptible on every portion of the ventricular surface. The shortening, rounding, hardening, and elevation of the central longitudinal axis, and increase of the transverse vertical diameter alone of the body of the heart, easily distinguished; also the jerking over the orifices, &c. &c.

Section 6.—The auricular systole apparently audible, but the sound not separated by any very distinct interval from the instantly succeeding ventricular sound, which however it preceded rather, and certainly preceded to the senses of touch and hearing together, the hardening and rounding of the ventricle.

Section 7.—In the dog as in the ass, the motions were slow comparatively in the heart, auricles as well as ventricles. The right ventricle first, and afterwards the left ventricle, was penetrated with a slender glass tube, drawn out for a couple of inches at lower end, and the result observed. In systole there was a sudden rise in the tube, and a slight subsidence in diastole. The subsidence was but slight, the greatest not being in the left ventricle more than half an inch, and in the right ventricle still less. The sinking of the blood in the tube in diastole was such as might be caused by a sudden withdrawal of an impulse sufficiently energetic (like that of the systole) to overcome gravitation abruptly, and so as to excite a jet in a tube containing a fluid column, sustained by a constant pressure (such perhaps as might be produced by the venous influx) from below.

Section 8.—In both hearts the right cavities were relieved from distension before complete cessation of action; and the areas of ventricles, judging by apparent extent of walls opened and spread out, seemed in no degree to differ.

Obs. XV. and XVI.—July 18th. Operated on two donkeys, of from 4 to 8 months old.

Phenomena.—1st donkey. Glass tubes introduced into left auricle and ventricle, and results noted. Normal pericardial frictions observed, and several others.

Phenomena.—2d donkey. Blunt hook and screw sucessively interposed between mitral valves, with considerable modification of first sound: also spontaneous abnormal sounds; auricular systolic sound; results of introduction of glass tubes into heart's cavities. Confirmation of former observations.

Woorara injected in each case. In the first the operation very successful, but in the second, a second dose of two grains required.

In the former much blood lost, owing to an accidental cut made in hastily opening the trachea for artificial breathing.

The heart found acting rapidly, hurriedly, and with a rhythm unfavourable for observation. Second sound not distinct.

The experiments intended were two, viz. stopping the mitral valves by an interposed blunt hook introduced through auricle, or by a screw-shaped wire similarly admitted. But owing probably to profuse hæmorrhage, the first sound was not sufficiently normal for that experiment, and the second experiment was made, viz.:—

Section 1.—Glass tubes drawn out at one extremity were pushed with a rapid rotatory motion into the auricle and ventricle of left side, and the column of blood observed. That in the auricle gave no satisfactory result, owing to sanguineous exhaustion apparently, and the consequent insufficient distension in diastole, and slight amount of contraction in systole in the auricle. But this much was noted; viz. that a very short column that filled the drawn-out part was not drawn in in diastole, yet neither was it very strikingly lengthened in systole. The ventricle gave better results, viz. a column rose rapidly by successive stages, rising some lines at each systole, and continuing almost stationary at each succeeding diastole, and at length overflowing the tube, and pouring over in large drops at each systole.

Section 2.—The frictions between the heart and pericardium in systole and diastole of auricles and ventricles; the tension and jerking motion upwards in systole and softening and subsidence in diastole, of the parietes of the ventricles; the abrupt jerking over the orifices in systole, followed by subsidence in diastole; the shortening of the diameters lengthwise and transversely in systole; the immediate succession, as by a continual undulatory motion, of the ventricular systole to that of the auricles; the sensation of an undulation from fundus to apex on the ventricles; the dimpling in systole of the left auricle (which only was observed), and the equality post-mortem cordis of the two ventricles; all those former observations were repeated, and former results confirmed.

Obs. XVI. — Section 1. — The second animal's heart, when exposed, was acting with more regularity than the former, and the blunt hook and screw were successively tried. In each case material modifications of the first sound were repeatedly produced by the interposition of the instrument between the valves in left interior opening; but the modifications were not constant, and in no case was there any attempt made to impede the right interior valves. This much, however, was noted; that on several occasions the interposition of the instrument was followed by murmur in the mitral opening with the systole, and by a more obtuse character of first sound, and particularly by a want of sharpness of definition at its commencement. But it is to be added that considerable irregularity existed for the greater part of the time in the sounds, viz. the first sound seemed sometimes, and without apparent cause, more obtuse than others, and more short and abrupt; and the second was often wholly wanting, or too indistinct for observation.

Section 2.—Further, there was observed a feeble dull sound, very short and rapid, synchronous with the left auricular systole, and somewhat anterior to the ventricular hardening and uprising, but scarcely separated by any distinct interval from the ventricular sound, and rather continued into it in a manner resembling the apparent passage of the auricular systole into that of the ventricle.

Section 3.—The glass tubes were in this experiment introduced as before with similar results. Nothing striking occurred in that passed into the auricle, but a very short column being obtained, and that nearly stationary: owing probably to the auricle having been penetrated in several places by the hook and screw, so as to suffer escape more readily by the other orifices. But the ventricle gave like results as in the former case, viz. a column rising in systole, stationary in diastole, and at length reaching the upper end so as to overflow. All the previously observed phenomena of the motions of the auricles and ventricles in themselves, and with respect to each other, and with respect to the pericardium, were confirmed in this subject, so that the description of those given under the head of the former experiment of this day, themselves but repetitions of former observations, must be considered to apply to the normal condition, without any important restriction or qualification.

Obs. XVII.—July 26. *Phenomena*—Dog. Distension and hardness of auricles during a torpid, and as it were semi-paralytic state of ventricles — results of a prick in left auricle—proofs of active nature of auricular systole—of negative character of ventricular and auricular diastole—of venous regurgitation during auricular systole—and of equal size of both ventricles, &c. &c. Confirmation of other former observations.

Section 1.—Heart acting regularly, but rather feebly, though large and muscular; much distended, and on both sides equally. Left ventricle and auricle both much dilated, and the auricle quite tense with blood, so that the appendix could not contract for some time, until a prick was made in it, when a jet was observed coincident with the systole. Some observers thought the jet synchronous with the systole of the ventricle, but on placing the fingers in contact with the sinus venosus and fundus ventriculorum together, it was plain that the jet coincided with the auricular systole, and preceded, by a fraction of a second, the ventricular systole. During the diastole of the auricles a slight shortening of the column, as from diminished impetus from below, occurred; and again in auricular systole, a sudden lengthening of the column, to be followed again by a shortening in diastole.

During the systole of the ventricles, immediately succeeding that of the auricles, and without distinct interval, no increase of the jet or column occurred; and during the diastole of the ventricles, no subsidence, other than the shortening before described, immediately after the auricular systole. During great part of the observation of the jet, the left auricle was tense and hard almost to the finger, and nearly immoveable, and the ventricular action was dull and feeble, and the ventricles themselves were not fully emptied in systole; the heart appearing to have suffered considerable torpefaction from the poison.

Section 2.—A glass tube was introduced into the left auricle and ventricle in succession, but a clot soon forming, owing to escape of soda solution during the rotatory motion by which the glass was first introduced, no very decided result was obtained.

Section 3.—After the ventricles had become very feeble, and even the left auricle become comparatively inert, some energy of systole was observed in the right sinus, and with each contraction a wave of regurgitation down the vena cava inferior; viz. a diastole of the vein immediately preceding the ventricular contraction, and coinciding with that of the auricle, and followed by a systole coinciding with ventricular contraction, and auricular diastole. The auricles at no time acted with sufficient energy to promise any result from traction by a string, or to yield distinct sound in systole, owing to extreme distension of the cavities, itself owing apparently to plethora of the vessels, and torpor of the muscular substance, and over rapid and copious supply of blood from the veins.

Section 4.—The ventricles after death seemed not to differ very materially in size, having been cut open before complete death, and allowed to contract.

Section 5.—Several previous observations confirmed on this occasion, viz. as to rhythm of motions cavities, viz. auricles and ventricles respectively exactly together, and the former immediately before the latter, and without distinct interval, but as by continued undulatory motion; elevation of central parts of ventricles in systole, and subsidence in diastole; frictions of the pericardium double, viz. both in systole and diastole. &c.

Obs. XVIII. —30th. *Phenomena.* — Tubes introduced into heart's cavities. Results. Confirmation of former observations as to rhythm, pericardial frictions, changes of shape in the heart, &c. &c. Comparative sizes of ventricles.

Operated on a dog between one and two years old, by prussic acid. Heart acting feebly, with the normal rhythm however; the cavities considerably dilated.

Section 1.—Glass tubes, containing strong solution of Carb. Sodæ secured, during the introduction, by corks temporarily fixed in the wide end, were introduced by a rapid rotatory motion into the right ventricle, and left ventricle and auricle. Owing apparently to awkwardness in the manipulation, the result was not throughout uniform to the eye, but the general character of what was observed was this. Columns of blood rose into the tubes in every case, and were perceived to overflow in each case with a slight jet in the systole of the cavity penetrated, and a slight subsidence in the diastole.

At one time, for a minute or two, without intermission, the tubes were observed to overflow steadily together, one being in left auricle and the other in the left ventricle; each having a slight jet or upward undulation in the systole of the cavity containing it. This experiment was comparatively striking, owing to the great difference in colour of the two streams, viz. scarlet, and deep crimson or purple.

During the whole operation nothing occurred suggestive of impulse, except of the impulse upwards of the systoles of cavities, and the slight gravitation or subsidence in disastole; and this latter, though often very distinct in each tube, was sometimes quite imperceptible in either. No motion downwards in the tubes, such as suction would explain, was observed.

Section 2. — After the observation, the heart was cut out, and the left ventricle appeared rather larger than the right.

Section 3.—The rhythm of the motions of the cavities; the auricular and ventricular double frictions against each other and the pericardium; the jerking upwards of the fundus and central parts of the ventricles in systole; the shortening in systole; the stationary state of the heart amid all its changes of size and shape; the subsidence of the central parts and fundus in diastole, &c. were noted to agree with former observations.

Obs. XIX and XX.—August 5. *Subject*—A donkey and a dog. Operated by woorara on a donkey, two or three years old. Operation tedious, owing to strength and resistance of the animal. *Phenomena*—Donkey. Negative character of diastole.

Dog.—Apex cordis threaded, and held tense in the direction of the mesial plane of the subject.—Results: Change of shape and size of the heart in systole and diastole, and visible motions. Glass tube curved, passed into cava inferior. — Results: Columnæ carneæ, and parietes, electrified. — Results: Cavities compared post-mortem, and found equal.

Section 1.—Glass tubes passed into left ventricle at fundus and apex, and in each a column rose, and at length overflowed, having a slight subsidence at each diastole, and sudden elevation at each systole, but no well-marked difference between the times of rise and fall in the tubes was detected.

Section 2.—The heart acted for some time with considerable energy, notwithstanding great hæmorrhage, but soon failed after being perforated. The heart was then cut out, while yet contracting vermicularly, and electricity was applied so as to penetrate the columnæ and parietes, but no satisfactory action was obtained. The cavities of the heart had been for some time much distended from loss of irritability before excision.

Obs. XX.—August 5. A terrier dog, stout, though small, was then stunned by a blow on the head and chest; was rapidly opened, and artificial breathing established.

Section 1.—The apex cordis was then threaded, and at each systole a pull at the cord was observed, followed by relaxation, and the tension and relaxation of the string alternated; the former coinciding with systole, and the latter with diastole.* At one time the string was kept firmly extended and permanently tense, by holding the hand as far away as the string would allow for a short space, and then maintaining position, but relaxing the hold, so as to allow the string liberty to slide between the fingers when drawn away—and the result was that before the experiment was suspended, an inch or more of the string appeared to have passed between the fingers, one-eighth of an inch at least being pulled through at each systole.

Section 2.—After this observation had been made, and repeated to the satisfaction of all parties, the heart acted stlll with much vigour, and both sounds were distinctly heard, notwithstanding great loss of blood. Also the diminution of the horizontal transverse, and of the longitudinal diameters, and the increase of the vertical transverse diameter, with sudden bulging upwards of the fundus and central parts, were very plain to the eye in systole, while in diastole the subsidence of the central parts, with sudden increase of the horizontal cross, and of the long diameters, were equally striking. No tilting of the apex as an independent part was noted, nor any other motion than such as might be explained fully by the fixity of the fundus, through the vessels, and the sudden increase of the cross vertical diameter in systole, causing an elevation of the longitudinal central axis, most sensible at the apex or free extremity.

Section 3.—A glass tube was introduced into the cava, with the termination directed towards the diaphragm, when a column of blood rose gradually without any jet until it reached the upper end nearly, when it ceased to advance, but continued stationary for some time, and at length sank slowly towards the middle of the tube. No sudden motion either upwards (as ex. gr. by auricular contraction) or downwards (as by diastole suction) was observed. A gradual subsidence in the tube then followed, owing apparently to failure of impulsive force in the moving powers of the venous circulation.

Section 4.—The heart was then cut out while yet contractile, and irritated by electro-magnetism, and by pricking with scalpel, and to the satisfaction of every one present the columnæ carneæ were observed to contract and relax coincidently with the parietes.

Section 5.—The ventricles were equal in capacity to the eye and hand post-mortem cordis.

Obs. XXI. and XXII.—August 8. *Subject*—Two dogs. Two dogs operated on, one a stout terrier, the other a mongrel bitch, both 18 months to 2 years old. *Phenomena*—Second dog. Glass tube introduced into cava. Results variable, with probable causation of fluctuations; — auricles cease action first; columnæ carneæ irritated alternately with neighbouring parts of parietes, and results;—confirmation of former observations respecting the mechanism of heart's action, and the equality of the cavities during life.

In the former animal the operation failed, owing to not having established artificial breathing in time.

In the dog the following results were obtained:—Having been prepared by stunning and tracheotomy, with a view to artificial respiration, the heart was exposed, and found beating with energy, exhibiting the usual motions and sounds.

Section 1.—A curved glass tube introduced into the cava inferior, and immediately a column of blood was observed, which, after ascending some way steadily, and during several beats of the heart, again descended, also steadily and during several beats. After a few minutes, the tube being held upright with care, and the lower opening of the tube being toward the abdomen, and pressure being made on the tube through the parietes of the vein, a column of blood ascended slowly and steadily to the top of the tube, and poured over at the top. Again, pressure being withdrawn from the cava, fluctuation occurred, viz. irregular ascents and descents of the column, gradually extending, each of them, over several beats of the heart, there being perhaps as many as half a dozen of each to each minute of the time they lasted. At no time was there any sudden elevation or subsidence of the column, such as the auricular systole or ventricular diastole might be supposed to produce, supposing the latter to include suction towards the ventricles. The variations of level observed in the tube could be referred with any probability to nothing obvious, except the play somewhat irregular and convulsive of the right thorax, which was intact, owing to a partial recovery from the stunning blow during the operation, attributable to hæmorrhage and artificial breathing. The tube was then introduced into the cava superior, and a column was observed in the whole length of the narrow part of the tube, and nearly an inch in height, and this column suffered no alteration either in systole or diastole. The shortness of the column in this case was owing obviously to the exhaustion of the vascular system, or insufficiency of blood, and of vascular tension. There was not any respiratory effort during this last observation.

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* The string was drawn in the line of the longitudinal axis of the heart.

Section 2.—During this last observation (on the cava superior) the unusual appearance was observed of complete quiescence nearly of the auricles, whilst the ventricles continued to act with considerable energy. The early death of the right auricle might be referred to withdrawal of supplies from the cava inferior especially, but that of the left auricle is not easily accounted for, since insufflation was duly persevered in.

Section 3.—The heart was cut out while yet contractile, and the columnæ carneæ of the right ventricle were observed to act accurately with the parietes, whether the stimulus were applied to the former or latter only. The columnæ of the left ventricle were become insensible to stimuli, and the parietes nearly so, before the left was laid open for observation.

Section 4.—The elevation of the central cardiac axis, and especially of its free extremity, the apex cordis, was very conspicuous in systole, and the opposite motions in diastole. Also the flattening and lengthening of the ventricles in diastole, and rounding and shortening in systole, and—after opening the ventricles, the left seemed the larger of the two. The wave-like motion, or sensation as of an undulation from fundus to apex in systole, was very distinct.

[To be continued.]

CASES AND OBSERVATIONS

ILLUSTRATIVE OF THE

MERCURIAL TREATMENT OF SOME FORMS OF INCIPIENT PHTHISIS PULMONALIS.

By William Munk, M.D.,
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[Concluded from p. 163.]

Case I.—April 25, 1838, Mr. J. T. æt. 25. Frequent short and hacking cough; scanty expectoration of a white spumous fluid, hurry of breathing, sensation of heat, and fulness at the upper part of each lung; shooting pains between the shoulders; well-marked hectic; copious morning perspirations; pulse 100, small, quick, and easily excited; loss of strength and flesh; bowels have a tendency to purging; urine deposits a pinkish sediment. The chest sounds well upon percussion in every part: the ear applied over the scapulæ, and on the anterior surface of the chest as low as the third rib, detects a clear muco-crepitant rhonchus, most abundant on the left side, the natural respiratory murmurs being unmasked over the remainder of the lung. Got wet through in the early part of March: had a rather severe attack in the chest, for which he was cupped between the scapulæ, took aperient medicine, and calomel, with James's powder, at night. By these means he was much relieved, the cough alone remaining; but during the last three weeks, or more, has become rapidly worse, the cough increasing, whilst expectoration, feverishness, emaciation, and shooting pains about the shoulders have made their appearance. Was in perfect health before catching cold. Has been free from any affection of the chest, with the exception of occasional attacks of common catarrh, which, in all previous instances, has quickly subsided. Has lost one sister, æt. 22, from phthisis, and an elder brother is now dying from the same disease.

Hirud. vj. infra sinistram, et iv. infra dextram claviculam.

℞ Hyd. Chlor. gr. j.; Ext. Hyos. gr. ij.; Pulv. Ipecac. gr. ss.; M. Sextis horis. Milk diet. To be clothed in flannel.

28th.—Increase of fever, greater hurry of breathing, oppression about the chest, and slight viscidity of expectoration.

Hirud. iv. infra sing. clavic.

May 1st.—More comfortable; has a coppery taste in the mouth; gums look spongy, but there is neither tenderness or ptyalism.

4th.—Mercurial action established; cough less frequent; pains of the shoulder gone; expectoration diminished; breathing less hurried. There is increase of fever, and copious perspirations, continuing the whole day.

Pil. j. nocte et mane.

From this time there was a rapid improvement; the mercurial action was maintained for a few days, and allowed to subside gradually. He then took two or three saline aperients, and was placed on sarsaparilla, iodide of potassium, and tincture of hop. The stethoscopic signs vanished, and in three months he was, as he still continues, in the enjoyment of perfect health.

Case II. May 8, 1838. Farringdon General Dispensary.—H. S., æt. 26, a porter, caught cold about eight weeks since by getting wet in the feet. Had rigors, which were succeeded by high feverish symptoms, severe cough, soreness over the front of the chest, great difficulty and hurry of breathing, and dull heavy pain of the head. Was attended by a surgeon on the Surrey side of the water; lost blood twice from the arm, and once by cupping below the blade-bones; took medicines, which gave rise to vomiting and purging. Soon got the better of the more severe symptoms, and was enabled to return to his employment; a slight degree of cough and expectoration, however, remaining. These two symptoms have of late increased so rapidly as to induce his master to send him to the Dispensary. The cough is now extremely frequent; expectoration of a greenish-yellow colour; breathing very rapid, especially on exercise; emaciation, loss of appetite, hectic fever, copious morning perspirations, small rapid pulse, and great lassitude. An abundant, very minute, clear mucous ronchus is heard at the top of the right lung; proceeding downwards this became coarser, more scattered, attended with the sibilant, whilst in the lowest portion, and on the left side, the respiratory murmur is unmasked. The resonance on percussion is clear over the whole chest.

Cal. gr. j. ter die.

11th.—Much purged; symptoms rather worse than better; increase of fever, and more restless nights.

Sing. pil. adjic. Opii, gr. ss.

18th.—Purging ceased; mouth sore: in other respects much the same.

Hydr. Chlor. et Opii, aa. gr. j. omni nocte.

22d.—Improved: cough less frequent; expectoration diminishing; breathing less hurried; mouth very sore.

Om. pil. Gargar. è liq. Sodæ Chlorinatæ.

25th.—Expectoration almost gone; cough less frequent; increase of debility, and great emaciation; tongue clean; bowels natural; pulse excessively weak; restless nights. An occasional mucous bubble at the apex of the lung is all that can now be heard.

℞ Quin. Disulph. gr. j.; Acid. Sulph. dil.; ♏ x.; Tinc. Camph. co. ʒj.; Inf. Cascarillæ, ʒxj. M. ter die.

June 15th.—Expectoration ceased, respiration natural; is gradually recovering strength and flesh. Has entirely lost all feverish symptoms, but there remains occasional dry and irritative cough.

℞ Morph. Acet. gr. 1-8th; Aquæ, ʒj. tussi urgente.

℞ Quin. Disulph., Ferri Sulph. aa gr. iss.; Pulv. Cinnam. co. gr. ij. M. ter die.

July 13th.—Perfectly well; has recovered his strength, entirely lost the cough, and every other pulmonary symptom. Auscultation and percussion indicate a healthy state of the thoracic organs.—Discharged.

A prescription was given him for a mixture, containing iodide of potassium, liq. potassæ, and infus. calumbæ.

May 30, 1840.—H. S. continues in good health, and a minute examination of the chest convinces me of the perfectly healthy condition of the lung.

Case III. Sept. 24, 1838.—Mrs. R., æt. 31, had a severe attack of influenza in July, from which she has never perfectly recovered. After the removal of the more urgent symptoms, she gained a little strength by change of air, wine, tonics, &c., but soon fell back again; the cough, which had never entirely ceased, becoming more and more frequent, is now attended with expectoration, slight in quantity and viscid in quality; rapidity of breathing; sense of tightness about the chest; small, feeble, and rapid pulse; emaciation, and hectic. There is irritability of stomach, thirst, diarrhœa, occasional griping pains, and slight tenderness of the abdomen; tongue rather red towards the edges, and covered in its centre, and at the base, with a layer of dirty mucus: dulness of percussion over the right clavicle. There is heard, anteriorly and posteriorly, in the upper portion of this side of the chest, an occasional sibilant ronchus; more evident than which, and in a great measure overpowering it, is a subcrepitant. Immediately beneath the clavicle there is slight increase of vocal resonance, and the expiratory murmur is, if any thing, more prolonged than natural.

Dextro inguini admov. Hirud. vj. et postea cat. commune.

℞ Pot. Nit. gr. v.; Sodæ Sesquicarb. gr. x.; Ext. Hyos. gr. ij.; Mist. Acacia, ʒij.; Dec. Cydoniæ, ʒvj. M. ter die.

27th. — Diarrhœa lessened; stools more natural; tenderness diminished; gripings still continue. A large poultice over the whole abdomen.

30th.—Abdominal symptoms much relieved; thirst diminished; tongue cleaner, and less red. Pectoral symptoms worse.

℞ Hyd. c. Creta, gr. iij.; Pulv. Ipecac. co. gr. iv.; Cretæ præp. gr. vj. M. sextis horis. Haust. è Mist. Cretæ et Kino si opus sit.

Oct. 2d.—The mercurial has been tolerably well borne; the bowels remain quiet; she complains of sleepless nights, and of oppression about the chest.

Empl. Cantharidis infra claviculam.

℞ Morph. Acet. gr. ¼; Aq. Rosæ, ℥j.; M. horâ decubitus quotidie sumendus.

7th.—Much the same; sleeps better, but the cough more troublesome; sibilant ronchus gone; subcrepitant more abundant and extensive.

12th. — Slight tenderness of the mouth; symptoms much the same; dulness more marked.

15th.—Soreness of mouth vanished, notwithstanding the regular employment of the powders. Gets gradually worse.

℞ Hyd. Chlor. gr. iss.; Pulv. Ipecac. co. gr. v. M. 4ta vel 6ta quaque hora.

21st.—Mouth again slightly affected.

27th.—Mercurial action has been steadily kept up, but without any amelioration; active and passive auscultatory signs increasing; cough constant; breathing very hurried; expectoration presents streaks of a yellow colour. No benefit resulting from the mercurial it was withdrawn. The case went on, gradually increasing, strength failing, pulmonary symptoms becoming daily more distressing: cavities were at length detected, and a severe attack of diarrhœa coming on, she sank rapidly, and died on Dec. 28th.

Case IV. Mar. 26, 1839.—A young woman, æt. 27, had a slight attack of scarlet fever in the latter part of January. She was treated by aperients, and, on account of a pain in the chest, a little difficulty of breathing, and cough, a blister had been applied to the sternum. This gave relief, and feeling herself much better, she returned to her situation; being, however, still troubled with cough. She got gradually worse, the cough becoming more frequent; respiration hurried. She suffered from thirst and considerable heat of skin. On applying for advice she stated that cough and shortness of breath, much increased on the slightest exertion, were the most prominent symptoms. She had occasional pains in the chest, expectoration of a white mucous and spumous fluid, brought up with difficulty, and adhering closely to the sides of the containing vessel. The skin was hot; pulse quick, frequent, and sharp; tongue white. There was considerable thirst, loss of appetite, and slight morning perspirations. She felt extremely weak, and had, within the preceding eight or ten days, rapidly lost flesh. The left scapular ridge was slightly dull; there was here diminution of respiratory murmur, with slight increase of vocal resonance, together with a clear subcrepitant ronchus, which last existed under the left clavicle, as low down as the third intercostal space. The remaining parts of the chest sounded well upon percussion, and the respiratory murmur there, somewhat puerile, was unaccompanied by ronchus of any kind.

V. S. c. brachio ad ℥xij.

℞ Antim. Pot. Tart. gr. ss.; Pot. Nit. gr. viij.; Tinct. Opii, ♏ iij.; Aq. ℥j. M. 4ta vel. 6ta qq. hor.

28th. — Feverishness diminished; pulse less sharp; thoracic symptoms and physical signs unaltered.

31st.—Pulse rapid, soft, and weak; heat of skin much diminished; copious perspiration; tongue no longer white, but covered at its base with mucus; complains of great debility. No improvement in the condition of the lung.

℞ Hyd. Chlor. gr. j.; Ext. Hyos. gr. ij. M. 4tis horis.

April 3d.—Slight feverishness; increased difficulty of expectoration; subcrepitant ronchus more intense.

Sinst. Scap. admov. Hirud. xij.

4th.—Relieved; dulness of scapular ridge diminished; gums look spongy.

6th.—Ptyalism established; cough, dyspnœa, and pain of chest diminished; crepitation lessened.

Pil. j. nocte et mane.

9th.—Still improving; mouth keeps very sore; dulness no longer perceptible; subcrepitant ronchus replaced by the mucous; expectoration free, and purulent in appearance.

Om. pil.

12th.—Gradually improving; mouth less sore, expectoration more copious.

Mist. Cascar. comp. ℥iss. ter die.

28th.—Expectoration all but gone; strength and flesh returning; breath no longer hurried.

May 12th. — Thoracic symptoms gone, and physical examination gives a most satisfactory result: experiencing, however, some fulness about the abdomen, and there being torpor of the liver, she had six leeches to the anus, and took, thrice daily, a mixture, containing taraxacum, carb. of soda, tinct. of hop, and sarsaparilla. Under this treatment she lost every symptom of disease, and regained her average weight and usual appearance.

Case V.—Jan. 19, 1839. S. B., æt. 23, of tall and slender make; guard on one of the northern coaches. Dyspnœa, much increased by exercise; frequent cough; difficult and scanty expectoration of a clear viscid fluid; occasional pains about, and sense of constriction in, the chest; heat of skin constant throughout the day, but with a feeling of chilliness towards the evening, and occasional slight perspiration in the morning: in other words, pyrexia, merging into hectic; pulse small, rapid, somewhat sharp, and easily excited; tongue white; considerable thirst, anorexia, and emaciation. His present illness has been of five weeks' duration; was brought on by coming up to town on a cold and very wet night. It commenced as does a common catarrh. This was for a fortnight entirely neglected, he still continuing his journies through the most inclement weather. Finding the indisposition increase, he went to a druggist in one of the provincial towns, who gave him a mixture, consisting, according to his own showing, of oxymel of squills and paregoric. From this he derived no benefit, and becoming each day worse and worse, was desirous of laying up for a few days. Circumstances prevented his doing so, and he continued his duties until laid up by another cold and wet night. He was prescribed for, and visited at home by a druggist in Whitechapel; but receiving no benefit, my advice was requested by his brother. The chest sounded well. In the scapular regions of either side, but more particularly on the right, a coarse crepitant ronchus existed; heard also on the anterior of the chest, as low as the fourth rib, but being here less evident than in the back; respiration was slightly puerile in the lower lobes, but unattended by any abnormal sound.

V. S. e brachio ad ℥viij. vel x.

℞ Hyd. Chlor. gr. iss.; Ext. Hyos. gr. ij.; Pulv. Ipecac. gr. j. M. ter die.

21st.—Blood cupped and buffed; felt relief from the bleeding, but, with the exception of diminution in the sharpness of pulse, the feverish symptoms are unaltered.

Iteretur V. S. ad ℥viij.

23d.—Blood slightly buffed; pyrexia diminished; cough; difficulty of breathing; heat and fulness of chest still considerable. Stethoscopic signs unaltered.

C. C. inter. scap. et sang. ℥viij. detrahentur.

24th.—Much relieved by the cupping; constriction of chest and difficulty of breathing lessened; expectoration less difficult.

26th.—Mouth slightly sore; great improvement in all his symptoms; ronchus continues; is, however, coarser, and approximating more in character to a fine mucous.

29th.—Full ptyalism; cough much diminished; expectoration more easy and less frequent; the dyspnœa and tightness of chest gone. Pulse 118, small, soft, and very weak.

Pil. j. singulis noctibus.

31st.—Complains now only of slight occasional cough, of the soreness of his mouth, and great debility. Expectorates but little, and the matter brought up presents the characters of declining bronchitis.

Om. Pil. Garg. è liq. Sodæ Chlorin.

℞ Magnes. Sulph. ʒij.; Inf. Rosæ, co. ℥xij. M. sing. auroris.

Feb. 4th. — Improving gradually.

Symptoms and signs of pulmonary lesion diminishing.

Mist. è Quina Acid. Sulph. Dil. et Inf. Lupuli.

In six weeks from this time he was sufficiently well to be again on his coach, the stethoscopic signs having entirely ceased. He so continued until August, when, without any apparent cause, he began to lose flesh and strength. Cough came on, and on the 18th of September, when he called upon me, a cavity was detected in the upper part of the left lung. He died January 6th, 1840,

Case VI.—March 3d, 1839. Thomas Smith, æt. 30, was attacked on the 18th or 19th of December 1838, with fever, which confined him to his bed for upwards of a month. Suffered a good deal from cough, pain in the chest, and shortness of breath, for the relief of which he had leeches, and subsequently blisters, applied to the front of the chest. He was considerably relieved, but never wholly lost the cough; did not thoroughly recover his strength, but was sufficiently well to return on the 17th of February to his situation, as porter in a Manchester warehouse. He then got wet feet, and increased his cough, which was attended with breathlessness on slight exertion, and a sense of heat within the chest. Getting worse he called on me this morning. The following symptoms were then observed: pallor of countenance, flushing of the cheeks, breathlessness, frequent dry cough, no expectoration, aching pain at the upper part of the chest, worse on the left side. Emaciation and debility, hectic, sleepless and restless nights, tendency to morning perspirations, which are best marked about the chest; pulse 118, small, soft, weak, easily excited; tongue covered at its base with a thickish layer of mucus. There is slight dulness of the left scapular ridge, left clavicle, and two superior ribs. Here the respiratory murmur is more indistinct than on the opposite side; gives the idea of being moister, but neither mucous, crepitant, or sub-crepitant ronchus can be detected. The same character of moisture is impressed upon the respiratory murmur at the apex of the right lung, but is unaccompanied by any other abnormal sign.

Emp. Canth. infra sing. Clav.

℞ Hydr. Chlor. gr. j., Ext. Hyos. gr. ij., Pulv. Ipecac. gr. ss. M. 6ta. quaque hora. To keep within doors, be clothed in flannel, and live upon milk.

10th.—Mouth sore; in other respects much the same.

Pil. j. nocte et mane.

13th.—Fancies himself a little better, but complains much of the mouth.

Garg. e Liq. Sodæ Chlor.

18th.—Better. Cough less frequent, breathlessness relieved; sleeps more comfortably.

Pil. j. omni nocte.

20th.—Slight expectoration; dulness barely perceptible; a slight mucous ronchus is occasionally heard on the left side.

Om. pil. Mist. è Quina, &c. ter die.

25th.—Has to-day a little feverishness; bowels confined; tongue white.

℞ Magn. Sulph. ʒij. Inf. Rosæ co. ℥xij. M. bis in dies.

28th. — Bowels open; feverishness subsided. Thoracic symptoms all but gone.

Mist. Tonica ut ante.

April 15th.—Able to return to his work. The lung has entirely recovered its natural state, but there exists a slight tickling cough.

℞ Morph. Acet. gr. ¼ urgente tussi.
Pil. è Ferri Sulph. Quina, &c. ter die.

I saw this man about Christmas, and then examined his chest. He was perfectly well, had lost the cough, and recovered his former appearance.

Case VII. — August 31, 1839. — W.F.C., æt. 28, is suffering from shortness of breath, frequent cough, expectoration of a transparent viscid fluid, occasional pains between the shoulders, sense of coldness towards evening, feverish and restless nights, morning perspirations; pulse 100, small, and rather sharp; thirst, emaciation, anorexia, occasional purging evacuations, generally much disordered. Percussionary resonance perfect; a scanty, but clear mucous ronchus exists in the apex of the left lung, most evident anteriorly; respiratory murmur here somewhat rough. The present illness originated in influenza, for which he was treated by Mr. Metford, to whose politeness I am indebted for having charge of the case.

℞ Pulv. Rhei. gr. xv., Sodæ Sesquicarb.

℈j., Tinct. Hyoscyami, ʒss. Aq. Carui, ℥iss. M. stat.

℞ Sodæ Sesquicarb. ʒj., Ext. Hyos. ℈j., Dec. Cydoniæ, ℥viij. M. ℥j. 6tis. horis.

Sept. 3d.—Evacuations more natural and less frequent.

℞. Hyd. c. Creta, gr. iij., Pulv. Ipecac. co. gr. iiiss., Cretæ, ppt. gr. vj. M. ter die. Mist. Cretæ cum kino si opus sit.

7th.—Increase of feverishness, greater tightness about the chest, coppery taste in the mouth.

9th.—Ptyalism established; no amelioration of symptoms.

12th.—Much the same. Mercury producing a good deal of irritability; diarrhœa; stools contain much mucus.

Om. Pulv. Ol. Ricini, ℥ss. stat. Cat. com. abdomini. Mist. è Soda, Hyos. &c. ut ante.

15th.— Rather more comfortable; bowels less irritable; stethoscopic signs and pulmonary symptoms increasing. The progress of the case from this time was pretty uniform; dulness on percussion appeared, cavities formed, and he died in February 1840, from perforation of the pleura, and consequent hydro-pneumothorax.

Case VIII.—Oct. 7th, 1839.—Miss N., æt. 19. Rapidity and shortness of breathing, frequent dry cough, dull heavy pain below the clavicles, great anxiety of countenance, emaciation, small, rapid, and rather sharp pulse, well-marked hectic, slight rigors in the evening, copious perspirations towards morning; nights restless, being disturbed by the cough and feverish heat. The bowels are purged, evacuations disordered; tongue red at the tip and edges, but white at the base and centre; occasional griping in the hypogastric region, relieved by pressure. Had measles five weeks since, and towards their termination was seized with increase of fever, shortness of breath, soreness beneath the sternum, and cough. These symptoms after a few days diminished, but never entirely ceased, the cough and shortness of breath remaining. She was able, however, to get out of doors: soon, however, became so much worse as to confine herself to the house, then to her room, and for the last four days, since the setting in of diarrhœa, has kept her bed. Percussion elicits a clear resonance from every part of the chest. The results of auscultation are more of a negative than a positive kind. The respiratory murmur is almost if not quite equal in intensity throughout the whole of the lungs; if any difference exists, it is in being a little more feeble in the subclavicular and acromial regions. There is, however, in these situations, an alteration of the respiratory murmurs; it is as it were moister, but neither sibilant, sonorous, mucous, or crepitant ronchi can be detected.

Hir. x. infra. claviculas.

℞ Pulv. Rhei, gr. viij., Magnes. Carb. ℈j., Pulv. Ipecac. gr. iss., Tinct. Hyos. ♏ xx. Aq. Carui, ʒxiss. M. bis terve de die. A large poultice over the whole abdomen.

9th.—Bowels less purged; gripings vanished; evacuations hasty, and containing much mucus; in other respects more natural; tongue less red, still white at its base; feverishness diminished. I have to-day heard in the left acromial region an occasional minute mucous bubble.

℞ Sodæ Sesquicarb. gr. x., Tinct. Hyos. ♏ xv., Mist. Acaciæ, ʒiij., Dec. Cydoniæ, 3ix. M. 6tis horis.

12th.—Intestinal disorder ceased; cough, dyspnœa, and emaciation greater.

℞ Hyd. c. Creta, gr. iij., Pulv. Ipecac. c. gr. iiiss., Cretæ, ppt. gr. vj. M. ter die et si opus sit. Mist. Cretæ. co. ℥iss., cum. vel sine Tinct. Kino.

17th.—Mouth slightly affected; an evident diminution of dyspnœa and cough.

21st. — Much better; pulmonary symptoms daily diminishing.

Om. pulv.

27th.—All the thoracic symptoms, with the exception of slight cough towards evening, have subsided; the debility and emaciation is great; there is now desire for food, and more comfortable nights.

℞ Morph. Acet. gr. j., Syr. Limon. Aq. aa. ʒvj. M. 3j. urgente tussi.

℞ Quinæ Disulph. gr. ij., Acid Sulph. dil. ♏v., Dec. Cinch. ʒxij. M. ter die.

From this period there was a slow, but gradual improvement. She recovered strength and flesh, entirely lost the cough, and in December was removed to Ventnor, with directions to take regularly the following mixture.

℞ Inf. Sarsæ ad formulam, Doct. O'Beirne, ℥viij., Liq. Taraxaci, ʒiss. Pot. Iod. gr. iv., Tinct. Lupuli, ʒiv. M. Pars quarta primo mane meridie, vespere et nocte sumatur.

This young lady returned to London last May. I then examined her chest, and could discover neither symptom or sign of thoracic lesion.

Case IX.—Feb. 6th, 1840.—C. H., æt. 24, caught cold in December, which laid him up for a few days. Cough and soreness under the sternum were then his principal sources of complaint. He was getting the better of these, when business called him into Wales; he got fresh cold, which exasperated his cough, and gave rise to other symptoms, which, owing to neglect, have been getting gradually worse. The cough is now almost incessant, unaccompanied by expectoration, save in the morning, when a little clear spumous fluid is brought up. The breath is short, and easily hurried; has no pain within the chest, but is much emaciated, and complains greatly of debility. Well-marked hectic; copious perspiration; pulse 100, weak, but easily excited. The whole of the right lung presents a sibilant and subcrepitant ronchus, the latter most intense in the upper lobe. The right lung is unaffected, and percussion gives a clear sound in all parts of the chest.

℞. Hydr. Chlor. gr. j. ter die. Morph. Acet. gr. 1-8th, urgente tussi.

12th.—Mouth slightly sore; pulmonary symptoms less severe; the ronchi in the inferior lobe notably diminished, but unaltered at the apex.

16th. — Expectoration more free, cough less frequent; stethoscope signs at the apex of the lung unaltered.

21.—Pulmonary symptoms increase rather than diminish; slight increase of vocal resonance at the upper part of the right side, where muco-crepitant ronchus is abundant. The lower part of the lung has returned to its healthy state.

Om. Pil. Gar. c̄ liq. Sodæ Chlor.

From this period he got gradually worse; his symptoms were met by palliatives as they arose; cavities formed, and he died on the 26th of June.

2, Finsbury Place South,
September 26, 1840.

OPERATION FOR STRABISMUS.

To the Editor of the Medical Gazette.

Sir,

Should the following observations on the dangerous mode of fixing the eyeball by means of a double hook during the operation for strabismus appear to you of sufficient interest to your readers, an early insertion in your valuable periodical will greatly oblige, sir,

Your obedient servant,
A. Franz, M.D.

19, Golden Square,
Sept. 28, 1840.

Ophthalmologists have by experience come to the conclusion, that the operation for cataract performed with the needle restores sight in a less perfect degree than extraction. The reason of this does not so much appear to be that the displaced cataract remains in the eye (for if the operation be performed according to rule, and under the proper indications, it is sooner or later removed from the eye by absorption), but rather that a variety of very delicate textures in the interior of the globe are often severely wounded. This is especially the case in scleronyxis. The wound made with the needle in the conjunctiva is of no consequence; that in the sclerotica heals generally readily and soon (in some cases it causes, however, small swellings, as Soemmering and others have observed); but the lesions caused by the needle to the inner membranes and parts of the eye are like wounds of the membranes of the brain, very dangerous, on account of the inflammation which frequently follows; and if, in addition to those lesions, pressure, stretching, and tearing of these membranes and parts be perpetrated, the danger, as in wounds of the meninges combined with compression or concussion of the brain itself, is not to be foreseen—the consequences may then be so fearful, that the power of vision may not only be still more diminished, but even entirely lost, or the organ itself destroyed.

These facts alluded to are sufficiently well known, and every ophthalmologist, or whoever has carefully observed the progress and result of operations for cataract, will confirm the truth of these remarks. They may, therefore, well form a basis to the following observations upon fixing the ball of the eye by means of a double hook for the sclerotica, during the operation for strabismus.

Mr. Weiss, who probably has made most of these hooks for fixing the eye, told me that they are generally 1-10th of an inch long, but that by some operators he was ordered to make them even 1-5th of an inch in length.

A horizontal section of the human eye demonstrates, that the thinnest portion of the sclerotica is situated from a distance of one line from the cornea to five lines from this membrane. Dr. Mackenzie, in his Treatise on the Diseases of the Eye, reckons its diameter, in this situation, at scarcely 1-40th of an inch. If we now add to this the tunica albuginea of the muscles of the eye and the conjunctiva, the thickness of these three membranes, in this situation, will certainly amount to not more than to 1-20th of an inch.

If we now compare the length of the hook with the thickness of the above-mentioned three membranes, it follows that it must not only penetrate them, but also wound parts situated within the sclerotica. Injury is therefore always offered to the arachnoid, choroid (consisting of the membrana venosa, membrana Ruyschii, and membrana pigmenti), to the pars non plicata corporis ciliaris, to the hyaloid, and more or less to the cells of the vitreous humour. If the hook is passed into the sclerotica at a distance of less than one line from the cornea, besides these parts, the annulus albidus, the processus ciliares, the orbiculus capsulo-ciliaris, the zonula Zinni, the canalis Petiti, even the capsule, or the lens itself, are wounded and separated in part from their delicate connexions amongst each other. If it is passed through the sclerotica at a distance of more than three lines from the cornea, the retina (consisting of the membrana Jacobi, the membrana nervea, and the membrana vascularis) is wounded. Lastly, if it is passed through the sclerotica in the horizontal equator of the ball, the ciliary nerves and vessels suffer. In this mode of fixing the eye, the lesions are, moreover, of far more importance than in scleronyxis. Firstly, the hook being double, inflicts on each of these textures two wounds, which, in consequence of the formation of the hook, are not, as in scleronyxis, simple and clean incised or punctured wounds, but lacerated and contused. Secondly, to hold the eye with the hook so that it may not slip out, in which case it would scrape just over the centre of the cornea, the ball of the eye must be pressed upon by it; and as, further, the eye is to be drawn towards the opposite canthus by means of the hook, the wounded membranes and parts in the interior of the eye are stretched and torn.

What consequences are we to expect from these, though apparently trifling, yet, when so delicate an organ as the eye is concerned, very important injuries? The consequences will vary according to the parts in the interior of the eye injured, and the extent of injury. To explain them all fully would detain me too long, I will therefore only mention some of the most probable.

Not to take into consideration the pain the employment of the double hooks cause, these are — spasmodic vomiting; ophthalmo- or blepharospasmus; extravasation of blood in the interior of the eye; organic cohesion of the inner membranes, which, in their normal state, are only in contact with each other; varicose metamorphoses of the choroid and corpus ciliare, usually the cause of staphylomata scleroticæ; interruption of the function of the iris, and the power of internal adaptation of the eye to various distances, thence myopy or presbyopy; opacity of the capsule of the lens (cataracta centralis?); muscæ volitantes, and other defects of the function of the retina; and, lastly, as the squinting eye generally suffers from a weakness of sight, this may be perpetuated or converted into confirmed amblyopy or amaurosis. The one or other of these complaints, consequent upon the application of the double hook, or a complication of several of them, will more readily follow, and, sooner or later, more certainly:—1. the more the ball was not only wounded with the hook, but pressed upon by it, and the membranes and parts in the interior were stretched and torn; 2. the oftener the eye had formerly been diseased, or if there exists a predisposition towards inflammation in the eye; 3. if the patient at the time of operation be in the years of puberty, is, by his occupation, necessitated to exert the eye, suffers from habitual congestion of the head and eyes or catarrhal or rheumatic affections, or is of strumous or otherwise cachectic constitution.

What I have stated may be sufficient to indicate the dangers awaiting the use of the double hook, and it is really astonishing that even ophthalmologists, not reflecting on the serious consequences it may cause, permit this dangerous instrument to be made use of. Altogether this operation seems to be considered too much in the light of a cosmetic, since, as I have hinted in a paper published in the MED. GAZETTE, Oct. 2d, it is of far greater importance to the patient; and, in the admiration of the novelty and surprising effect of the operation, the delicate structure and functions of the organ appear to be somewhat forgotten. A little reflection upon the anatomy and physiology of the eye would have convinced the advocates for double hooks that the injuries done with them to the inner membranes and parts are by no means indifferent, and that in all operations on the eye, injuries to those textures whose integrity we are justified in concluding to be of the utmost importance to the functions of the organ of vision ought to be avoided.

In operating for strabismus, nothing is more easy than to secure the proper membranes of the eye-ball from all injury, if, instead of a double hook for the sclerotica, we use a simple fine hook for the conjunctiva, and pass it through this membrane and the subjacent cellular tissue in that situation, where it leaves the ball to proceed to the inner canthus. Thus we are perfectly able to hold the ball in a direction forwards, or, if necessary, to draw it outwards, without wounding it in the slightest. The conjunctiva will sometimes be separated a little from its connexion with the sclerotica in the neighbourhood of the hook, but this portion of the conjunctiva may immediately after the operation be removed by a pair of scissors, as it is soon reproduced without any ill consequence whatever. Dieffenbach, as I have stated elsewhere, made use of a double hook for the sclerotica in his first operation only; and then, seeing how unnecessary and even dangerous it was, laid it aside for the simple hook for the conjunctiva. I myself, in my very first operations (*vide* MED. GAZ. April 17th), and in all subsequent cases, have fixed the eye with a simple hook passed through the conjunctiva, and have found it perfectly to answer the purpose. The hook I employ is made by Weiss, and furnished with a sliding guard, to cover the sharp extremity when passed through the membrane, for security against wounding the cornea in cases of restless children. Latterly I have rejected this hook also, and now use a pair of forceps expressly made for this purpose, and not unlike Assalius's tenaculum, which fully answer the purpose, and have this advantage over the hook, that they can be removed from the conjunctiva with greater facility.

ON UTERINE HÆMORRHAGE.

By FRANCIS ADAMS,
Surgeon.

(For the London Medical Gazette.)

NOTWITHSTANDING the illustration which this subject has received of late from many intelligent writers, and more especially from M. Gendrin, of Paris, it appears to me that there are still many facts to be ascertained respecting the causes of the hæmorrhage, and many points in the plan of treatment by no means satisfactorily determined. For example, we find it generally laid down in the standard works on midwifery, that in all labour cases attended with flooding the discharge of blood proceeds from the separation of a part of the placenta, arising from its abnormal implantation near the mouth of the womb. Upon this point the authority of the "London Practice of Midwifery" is sufficiently precise:—"The proximate cause of puerperal flooding is in all cases the same thing, consisting of a partial separation of the surface of the placenta from that of the uterus." Dr. Burns is equally decided that "if the membranes be still entire, the hæmorrhage proceeds certainly from the detachment of part of the placenta or decidua." Now, without pretending to deny that separation of the placenta is an occasional cause of flooding in labour, I am convinced that it is not the sole nor even the most common cause of it. In continuation of this position I will now call attention to a certain class of labour cases attended with flooding, which appear to me either not to have been described at all in the common works on midwifery, or, at all events, not to have met with that attention which they deserve in a practical point of view.

About twenty years ago I was called to a woman in labour with her fifth child, and found her much alarmed about herself, as her pains were attended with a considerable discharge of blood. Upon examination, instead of finding the os uteri in its ordinary state, I discovered a large mass of substance, which, from its feel, I took for a portion of the placenta, protruding before the head of the child, which could be felt at the brim of the pelvis. Being then rather a novice in obstetrical cases, I called in a neighbouring practitioner, who happened, however, unfortunately, to be as inexperienced in those matters as myself, and both, after mature consultation, came to the conclusion that it was a case of placenta prævia; we therefore contemplated being under the necessity of having recourse to forcible delivery, but agreed to wait for some hours, as the woman's strength was not impaired. She continued for the space of about forty-eight hours from the commencement of labour to have occasional pains, attended with gushes of blood, but with some intervals for a few hours, during which there was no hæmorrhage. At last the labour pains set in briskly, and soon changed the aspect of matters: the mass which we took for placenta gradually diminished in size, and slipped over the head of the child, which was delivered without any unusual symptoms. After the birth of the child, being still apprehensive of flooding, I introduced my hand into the uterus, and extracted the placenta, which I found attached, as usual, near the fundus. The woman had a good recovery. After turning over the circumstances of the case in my mind, I concluded that the substance which my coadjutor and I had taken for placenta must have been the os uteri in a swollen state, arising from engorgement of blood, and that the discharge had proceeded from its vessels being in a preternatural state of activity. It is well known that the opening of the os uteri, in ordinary cases of labour, is attended with some discharge of blood: it is natural, therefore, to suppose that the hæmorrhage should be excessive when, from some cause or other, the vessels of the part are enlarged.

About ten years ago I met with a case similar to the above in all respects, except that the flooding was more alarming than in the case I have related. It terminated, however, favourably, without much interference on my part, or of the midwife who had charge of it.

About three months ago I was called in to see a woman who was reported to be in a very dangerous state from excessive flooding in labour. She was about forty-two years old; and here it may be proper to mention that, in all the cases I have related, the women were near that age, and had borne several children before. The flooding in this case was such as would have alarmed me much, if I had not ascertained that it proceeded from tumefaction of the os uteri, as described in the two preceding cases. I explained the nature of the case to the female attendant, directing her at the same time to give a few grains of solid opium to the woman, and to apply cold cloths to the hypogastric region. I saw the woman some hours afterwards, and found that the labour pains and the hæmorrhage had been both stopped by the opium. The os tincæ was still swelled to about six times its ordinary thickness. The further progress of the case, as I afterwards ascertained, was this:—About twelve hours from the time when she got the opium the labour pains became strong, and the woman was delivered without much flooding. The placenta came away after the interval of about half an hour.

From the cases which I have related, it is impossible, I think, not to draw the conclusion that abnormal implantation of the placenta is not the sole cause of uterine hæmorrhage in delivery. That cases similar to those which I have described are sometimes taken for placental presentation appears to me extremely probable: indeed, from having fallen into this mistake myself in the first instance, I am the more disposed to believe that others may have committed the same. In fact, the feel of the os uteri, when it is much tumefied, is so different from what it is in its natural state at the commencement of common labours, that a person not prepared to meet with such a state of the parts, and impressed with the general notion that hæmorrhage in delivery arises invariably from malposition of the placenta, may readily fall into the mistake of taking the swelled mouth of the womb for placenta. I can also believe that tapping of the membranes, as recommended by M. Gendrin, may have the effect of accelerating the progress of labour, and, in this way, of stopping the discharge; although, from my own experience, I would infer that such a step is uncalled for, as all my cases have terminated favourably by merely observing a cooling regimen, and giving small doses of opium.

I may mention further, that, in the course of my obstetrical practice, I have met with other cases of this description, but none so well marked as those I have related.

Judging from my own observation and experience, I would say that *placenta prævia* must be an extremely rare complication of labour in the rural districts of Scotland. In proof of this I may mention, that after practising in a populous part of the country for upwards of 20 years, during which time I have either attended or been consulted about a great majority of the preternatural cases, I have never met with a single case of abnormal presentation of the placenta, and after making diligent inquiry of the most experienced midwives in the district, I can only learn of one case having occurred in the course in that time. The history of it is instructive. A woman in the eighth month of pregnancy was seized with flooding, for which she consulted a surgeon, who placed her under the charge of a neighbouring midwife. He was several times sent for during ten days or a fortnight, on account of excessive attacks of flooding, preceded and accompanied with slight labour pains, but did not deliver her. At last, upon the occurrence of an excessive discharge of blood, the midwife, upon examination, found the placenta in the vagina before the head. The surgeon was sent for, but did not arrive very soon, and the woman died undelivered. This is the only case of placental presentation which has occurred in a district of a country containing, I should think, not less than 7000 inhabitants, during the space of 20 years. It would be a curious and instructive fact to ascertain whether it occurs more frequently in towns, and under different circumstances of the inhabitants. According to Mr. Farr, the proportion of deaths from child-bed is 71 per cent. greater in towns than in the country. It would be important to know whether abnormal implantation of the placenta be one of the causes of this greater mortality. For this reason, as well as many others, it would be much to be desired that medical statistics were more cultivated.

I have a few cursory remarks further to make on certain points connected with this subject. It is still generally taught in the common works on midwifery that the placenta is sometimes retained after the birth of the child, in consequence of an irregular contraction of a portion of the uterus around it, so as to form what is called the hour-glass contraction. I have long been of opinion that there is no irregular contraction of a portion of the uterus in this case, but that the os uteri and parts about it have contracted; that is to say, have returned to their natural dimensions before the placenta has been cast off. It will be invariably found, therefore, when one has occasion to introduce the hand into the uterus several hours after delivery to contract the placenta, that the os uteri has contracted about the latter, so that it appears as if enclosed in a cyst. I was called lately to a case about eight hours after delivery, in which a retention of the placenta had taken place, and the cord had been torn by the efforts of the midwife to deliver it. In introducing my hand I found considerable difficulty in getting it into the uterus, owing to the contraction of the os uteri and the parts adjoining to it, but it was obvious to me that the obstruction was at the entrance into the womb, and not in the intermediate space between the fundus and the os uteri, as it is represented to be by those writers who describe the hour-glass contraction. In short, I am satisfied from my own observation in this and many other cases which have occurred to me, that what is called the hour-glass contraction never does take place.

The excessive discharge of blood which sometimes occurs after delivery would appear to me to arise invariably from the rupture of the small vessels in the inner membrane of the vagina and os uteri, either occasioned by the expulsion of the child in natural labours, or abrasion produced by the application of instruments. It will be observed, therefore, that whenever much force is used in effecting delivery with the forceps, hæmorrhage never fails to follow, as happened in the case related by Dr. Ehrenreich in the *Medicinische Zeitung*, No. 37. and copied into the 19th No. of the *British and Foreign Medical Review*. In this case a woman, after being 34 hours in labour, was then, on account of narrowness of the pelvis and absence of pains, delivered with the forceps of a living girl, her first child. This was followed by a flooding so excessive that the accoucheur judged it necessary to introduce his hand into the uterus, and apply pressure to the aorta, first with his hand, and afterwards by means of a heavy sand-bag. In two hours after the urgent symptoms subsided, and "*six weeks after* the patient was perfectly well, *with the exception of weakness*." It may appear presumptuous in me to venture to animadvert upon the practice of another, who is not only more eminent in his profession, but who had superior opportunities of forming a correct judgment of the case in question. But I may be permitted to state that, under similar circumstances, I should have deemed it my duty to wait much longer than Dr. E. did, before having recourse to delivery by instruments. If, instead of delivering at once by the forceps, he had encouraged his patient, and supported her strength by proper means, it can scarcely be doubted that in due time the pains would have returned, and by gradually expanding the perinæum, and moulding the head of the child into a suitable shape, would in this way, at length, have effected the delivery; and, although this process would, no doubt, have been a tedious and anxious one, both to the practitioner and the patient, it would, in all probability, have been followed by a more satisfactory recovery, so that in the course of *six days* after delivery the woman would have been better than he describes her to have been "*six weeks after*." I may add, that in the course of my professional practice I have met with many alarming cases of flooding after delivery, but have been fortunate enough not to lose any of them, although I never have recourse to the active means recommended by Dr. E., and content myself with applying a cloth wet in cold fluid to the abdomen, exposing the woman's parts to cool air, laying her head low, and giving wine and water frequently in small quantities. I have long been convinced that the introduction of the hand into the uterus, in such cases, has more frequently the effect of provoking hæmorrhage than of restraining it.

At the time when I first became connected with the profession it was the established rule of practice, in all severe injuries of the head, to trephine the skull; and when, as sometimes happened, the patient survived the effects both of the accident and the operation, the surgeon ascribed recovery of his patient from the accident to the operation, and claimed merit to himself and his profession accordingly. Further experience, however, has produced a notable change of opinion on this subject, and it is now generally believed that the great number of deaths which formerly occurred after such accidents is to be ascribed to the *nimia medici diligentia*. And perhaps the time is not far distant when it will be generally admitted that a less vigorous plan of treatment in uterine hæmorrhage is much more effectual in saving life than that which is now pursued—namely, the practice of introducing the hand into the uterus, stimulating its abraded surface, compressing the great blood-vessels of the abdomen, and laying heavy weights on the belly.

Banchory, Aberdeenshire, Oct. 10, 1840.

ON THE USE OF GUAIACUM IN CYNANCHE TONSILLARIS.

To the Editor of the Medical Gazette.

SIR,

I BEG leave to send you a few cases of cynanche tonsillaris, treated by guaiacum, for insertion in your valuable journal, if you deem them worthy of a place in its columns.—I am, sir,

Your obedient servant,
JOSEPH BELL, Surgeon.
Barrhead, October 10, 1840.

CASE I.—Mrs. T. (Nov. 18, 1838), a stout healthy lady, æt. 23 years, of dark complexion: complains of severe pain of throat, and difficulty of deglutition, which is attended with severe pain, headache, rigors; pulse 108; surface hot; face flushed; tonsil of right side much swollen, of a deep crimson colour, and on its anterior surface, there is a small greyish looking patch of lymph; velum pendulum palati red, swollen; left tonsil also slightly swollen and red, but pain is chiefly referred to right side; tongue white and furred; complaints commenced yesterday, when she took an ounce of castor oil, which operated freely; has had several similar attacks, which always ended in suppuration.

Habt. Tr. Guaiac. ʒiij.; Mucil. G. Arab., Syrup. Simpl., aa. ℥ij.; Aq. Cinnamom., Aq. Puræ., aa. ℥iv. M. et solut. sumat. ℥ij. 6ta. q.q. hor.

19th.—Headache gone; pain of throat much relieved; pain on swallowing very slight; pulse 90; skin moist; tonsils less swollen, and redness nearly gone, tongue very white; bowels freely moved.

Contin. medicamenta.

20th.—Has no pain in throat to day; can swallow with perfect ease; feels quite well; swelling of tonsils almost gone; pulse 72.

Intermit. medicam. sed utat. Gargarism. Boracis.

Case II.—Jan. 6th 1840. Miss M‘A., æt. 21, of a weakly habit: complains of severe pain of throat, rendering deglutition excessively painful and difficult: face flushed; headache; right tonsil very much enlarged, and of a fiery red appearance; velum pendulum palati and uvula in a similar state; tongue covered with a deep dirty white fur; pulse 120; rigors; bowels irregular; was seized with pain of throat yesterday afternoon; left tonsil suppurated about two months since. Ordered to have the same mixture as prescribed in last case.

7th.—Pain of throat and difficulty of swallowing gone; redness and swelling of tonsil and fauces nearly gone; headache relieved; pulse 72. Cont. bowels freely moved.

8th.—Free from complaint.

Intermit medicament.

Case III.—Jan. 25th 1839. David M‘C., æt. 30, a stout active man: complains of severe pain of throat; both tonsils exceedingly red, and very much swollen, so much so that they almost meet; uvula of a similar colour, and swollen; cannot swallow any thing solid, and fluids cause excessive pain; pulse 106; skin very hot; bowels have been opened by sulph. magnes.; has been ill for the last three days.

Habt. Mistur. Guaiaci, ℥ij. 4ta. q.q. h.

26th.—Feels greatly relieved of his pains; has been able to take some breakfast; tonsils much less red and swollen; pulse 80; bowels freely moved; perspired freely during night. Cont.

27th.—Feels quite well; can swallow with great ease; tonsils have nearly resumed their natural appearance.

Intermit medicament.

Case IV.—Feb. 9, 1839. Mrs. M‘Nab, æt. 27 years, fair complexion, full habit, complains of severe pain of throat; countenance flushed; eyes suffused; violent headache; skin hot; tongue white, deeply furred, yellow streak in centre; both tonsils highly inflamed; velum pendulum and uvula in a similar condition; deglutition accompanied with very acute pain; back of pharynx covered with a dirty yellow layer of lymph; rigors; pulse 110; bowels freely moved yesterday by infus. sennæ. Was seized yesterday, after exposure to cold. Ordered the guaiac. mixture as in the other cases.

10th.—No complaint; feels quite well, although left tonsil is still a little enlarged, but is now pale. Cont.

11th.—Continues well.

Case V.—July 7th 1839. John Buchannan, æt. 25, dark complexion, of a full habit: complains of difficulty of swallowing, and pain in right side of throat; has not been able to take any food for the last twelve hours from pain of throat; rigors; right tonsil very much enlarged, and of a deep red colour; uvula in a similar condition; pulse 114; tongue covered with a dirty white fur; bowels open; has been ill for three days.

Was ordered to follow the same treatment as the other cases.

8th.—Pain of throat gone; can swallow with freedom; inflammatory appearance of tonsil nearly gone; pulse 70; bowels freely opened. Cont.

Case VI.—March 18, 1840. M. M‘Farlane, æt. 45 years, a weakly man: complains of inability to swallow from severe pain of throat; both tonsils highly inflamed; as is also uvula; tongue white, furred; pulse 120; great

restlessness from pain of the throat; has been ill for nearly three days.

To have the guaiac. mixture, as ordered in the preceding cases.

19th.—Had great difficulty to swallow medicine at first, but can now take some food, as complaints are nearly gone. Cont.

20th.—Free from complaints.

Intermit medicament.

The above six cases are selected at random from about forty cases, all of similar import, except two, in which suppuration took place, although the medicine was assiduously administered. I was first led to use the remedy from the recommendation of Professor Hannay, Glasgow, and I have found it highly beneficial in the speedy removal of this very troublesome complaint. The two cases referred to were of many days duration when the guaiacum was given, and this may account for its failure in these instances. I have not the slightest doubt but that, if timely administered, it will, in 99 cases out of 100, cut short the affection in question.

DE QUIBUSDAM GENITALIUM MASCULORUM PROPRIETATIBUS.

[*For the Medical Gazette.*]

Ubi jam thalamo se composuit homo viribus integer, suosque sopor occupavit artus, membrum tumet genitale. Hoc non rarò, sed semper, haud sparsim, sed toto evenit generi marium adultorum.

Hæc veretri inflatio, corpore vigenti, somno incipit obrepente: somno gradatim cessante desinit.

Plerique, cum nox primò somnum conciliet, altùm dormientes hujusce tumoris haud conscii sunt. Nocte autem adultâ, quum vesica urinis repleatur, expergiscuntur matulam quæsituri, dolorem cystidis distensæ evacuatione sedaturi. Hoc ipso tempore sentitur erectio virgæ.

Erigitur autem membrum primis horis; nam si clamor subitus de suo "balmy sleep," virum expergefecisset, illo etiam tempore percipiatur inflatio.

Hæc in impuberibus varissimè, in adultis, sani corporis, semper notatur. Sani, dico, corporis; scilicet febriculâ, seu mærore corpus, aut animum opprimente, interrumpitur somnus, flaccet virga. Veretri durities distensi ad virorum valetudinem coæquatur. Hæc autem erectio medicorum et physiologorum lucubrationibus est dignissima.

Medicus haud rarò, si arte exercendâ multum occupatus sit, miserum conspicit, qui sese amoris impotentem lamentatur.

Sed imbecillitas hæcce non semper a corpore; frequenter ab animo derivatur.

Ad morbum idcircò sublevandum discrimine acuto opus est. Mentula noctu distensa diagnosin reddet facilem.

Perfectâ erectione structura genitalis, quo ad partem corpoream, efficax et naturalis arguitur.

Medicus, hoc intelligens, animi morbum haud corporis languorem ægro miserabili detegit; et modis subdolis ad mentem respicientibus, virum ad vires revocabit.

Hæc genitalium, somno artus solvente, vivacitas alios propter ægrotos magni est æstimanda.

Sæpè enim medico flentes queruntur ægri de *seminis emissione*, noctu turbante, somniis aut lascivis aut usitatis.

Hæc verò profluvia, viris a venere alienis, haud morbo sed naturæ referenda sunt. Idem stimulus, eadem irritabilitas mentulam producunt, semen expellunt.

Hæc evacuatio, motuum consecutorum ultimus, genitalium evincit vigorem; nisi frequentissimè continget; frequentissima morbum indicat asthenicum.

Mihi hæc perpendenti, videlicet veretri duritiem, seminis somno profluvium, mirabilis videtur consensus legis naturæ præceptis cum moralibus.

Lex enim est physica organorum animalium vires usû firmatas, etiam auctas esse; desuetudine infractas. Aures, oculi, nasus, lingua, tactus—ad quantam sensûs ἀκρίβειαν usû perveniant!

Quanta sensuum hebetudo, si torpescant otio!

Cataracta oculi potentiæ, quà cernit, se opponens, si multos annos inveteraverit, retina vim perceptivam perdet.

Usus crurum aut brachiorum si pro tempore cesset, fient membra tenuiora. Musculi more insolito exercitati quantum adipiscantur magnitudinem!

En athletarum corpora! Ex pede, dicitur, Herculem. Ex musculo bicipite Crib, Molyneux, Gully, M.P.

Talis est lex physica. Precepta verò

moralitatis Christianæ huic legi obstare *videntur*, castitatem exigentes perfectam.

Quæ, si ritè hæc serventur jussa, multis cœlibibus per menses, per annos, sit duratura.

Quid ergo? Morum puritas partium genitalium vires minuit? Haudquaquam. Quippe potentia hisce nocturnis mentæ inflationibus mirum in modum conservatur. Naturæ et sanctitatis admiranda congruitas!

Multi prætereà mœchi, obtentum vitiis quærentes, concubii necessitatem asseverant. Si castè vivant, plethorâ seminali, sic aiunt, corripientur; et ægritudine seu morte prematurâ virtutis stultitiam monstrabunt.

Falsa! Ipsæ, enim, emissiones, naturæ mandato, plethoram, seu universalem, seu genitalium, præveniunt.

Sic mandata Christi et natura corporis consentiunt. Dum homines lascivi culpam à se haud amoveant; casti infirmitatis timorem hilariter objiciant. Nec poetâ sceptico concordent, turpiter blaterante—

> "Tantum religio potuit suadere *malorum*."

ROBERTUS HULL, M.D.
Collegii Regalis Extra-Permissus.

Norvici,
Octobris 1840.

REPORTS OF CASES,

BY H. M. HUGHES, M.D.

Assistant Physician to Guy's Hospital, and Physician to the Surrey Dispensary.

[*For the Medical Gazette.*]

Pneumonia.—Though the occasional existence of a latent form of the complaint cannot be doubted, there are few diseases the characters of which are usually more distinctly marked than pneumonia. The general symptoms, and the physical signs; the pungent heat of skin, to which attention has been recently called by Dr. Addison; the viscid rusty expectoration; the short hacking cough, occurring especially after each attempt at deep inspiration; the peculiar crepitating rattle; the defined dulness on percussion, and the resonance of voice over the affected part, are sufficient to distinguish its early stages from all other diseases with which it is liable to be confounded. I have, however, not unfrequently observed that young and inexperienced auscultators decide upon the existence of pneumonia from the simple fact of hearing a crepitating rattle, of whatever form or quality; and as this rattle, under some of its phases, exists in œdema of the lung, in inflammation of the minute bronchial tubes, and in what is called pulmonary apoplexy, as well as in the early and receding stages of pneumonia, it has been supposed by some that it cannot be regarded as characteristic or pathognomonic of that disease. There are others, accurate observers, who consider that the crepitating rattle of pneumonia is peculiar, and distinguishable from that accompanying all other affections of the chest. Whether a previous stage can be recognised by a local puerile respiration, as some authors believe, or whether the presence of the pulmonary congestion, which at least sometimes precedes inflammation, may be ascertained by the "humid ronchus with continuous bubbles," as stated by M. Fournet—or whether there are any characters in the rattles which are sufficient to distinguish the crepitation of advancing from that of receding pneumonia, as has also been asserted by that gentleman—my recent experience has not enabled me to form a decided opinion; but observation induces me to believe that a small, fine, equable, and dry crepitation, occurring in puffs towards the termination of the inspiratory movement, is certainly characteristic if not pathognomonic of an early stage of the disease.

Of all complaints of the chest, none, with the exception of pleuritis, have appeared to me to be so entirely under the control of remedies, when occurring in persons of good constitution, as pneumonia. As I have generally found the ordinary plan of treatment by bleeding, calomel, and antimony, to be effectual in subduing the disease, and as I have sometimes seen it recur more than once after its temporary reduction, until the system has been brought under the influence of mercury, after which it has rapidly and entirely disappeared, I have never yet treated a case of pneumonia by large doses of antimony alone, though I believe that there are instances, particularly in children, in which such treatment may be desirable. Not having myself, however, met with them, and already possessing means of subduing the disease, the efficacy of which had, I believed, been abundantly proved, I have not felt justified in trying experiments of other methods of cure in an affection the character of which is so important as, in its result, to involve the life or death of the individual.

The preceding remarks upon the usually remediable nature of pneumonia, and the efficacy of the means ordinarily adopted for its cure, may appear singularly inconsistent with the fact that the three cases noted in the table formerly published all terminated fatally. This inconsistency will, I think, entirely disappear, when the circumstances connected with these three cases are attentively considered. They were the following:—

1st.—A child, aged five months, who had been ill for three or four days before I saw it, was at that time blanched from loss of blood, and other active treatment, and had a sloughing blister upon the sternum: the respiration was extremely frequent, and the pulse a mere flutter. Stimulants were immediately administered, but it died the next or succeeding day. This, had it been sufficiently early, might probably have been a fair case for the exhibition of antimony. No examination was allowed.

2d.—A man, aged 60, by occupation a carter, of very intemperate habits, who, according to his wife's statements, had taken very little solid food for some years, and had lived almost entirely upon porter and spirits. When visited he was labouring under subacute pneumonia of the left side, which, as indicated by the stethoscopic signs, appeared to be reduced by the mild antiphologistic measures adopted for his relief. The natural sound on percussion of the part returned; the resonance of the voice ceased; the febrile excitement subsided; the cough was far from frequent or troublesome, and he had no hectic; but he took no food, and having entirely lost his relish for his formerly favourite beverge, he lingered on for six weeks or two months, and seemed ultimately to die, not so much from the direct consequences of his primary disease as from exhaustion, resulting from his incapability of taking sufficient support. No examination was allowed.

3d.—C. B. aged 18, a thin youth, of light complexion, whose ordinary occupation was in a gas-factory, took scarlatina from his younger brothers, who passed through the disease without danger, and almost without inconvenience. He was not seriously ill, and was confined to his bed only one day, Sept. 24th, after which, the rash not having disappeared, he returned to his work, and continued it till the evening of the 28th, up to which time he drank freely of cold water, as was his custom while heated by his occupation. On that night he complained of feeling very ill, and of severe pain in his back, right side, and scrobiculus cordis, and subsequently of cough and dyspnœa. He was seen by a surgeon, who bled him twice, on Sept. 29th, to about 16 ounces; and on Sept. 30th, to 12 ounces, and prescribed such medicines as he thought fit. On Oct. 1st he was admitted a patient of the Surrey Dispensary, under my care. I found him lying on his back, with his shoulders raised; a flushed turgid face, and anxious countenance; a hot and pungent skin; a red dry tongue; his respiration 48 in the minute, and very laborious; his pulse 140, fluid and compressible. He had a frequent cough, with an abundant thick and viscid, yellow, muco-purulent expectoration. He had passed in the previous twenty-four hours between two and three pints of dark purple-coloured urine, with some coagula of blood. His distress was too great, and he was altogether far too ill, to render a minute stethoscopic examination of the chest either necessary or justifiable, but dulness on percussion was sufficiently evident on the right side of the chest, below the mammary region, together with increased resonance of the voice, and distance of the bronchial rattles. The same was observed on the lower part of the left side posteriorly. The upper part of the chest sounded well on percussion; but here, as in every part of both lungs, was heard an intense mucous rattle. His pain he referred to the loins, and inferior part of the right side of the thorax. On the whole he presented one of the most acute, extensive, and unpromising cases of recent disease, that I had ever witnessed. Ordered

C.C. lumbis ad ℥xii.; et lateri dextro ad ℥vi.

Descendat in balneum callid. et postea applicetr. Cataplasma Lini lumbis. ℞ Pulv. Jalap. gr. xii.; Hydrarg. Chlorid. gr. iij. st. sumend. ℞ Antim. Potassio Tart. gr. ¼; Hydrarg. Chlorid. gr. j.; Pulv. Digitalis, gr. ss.; Ext. Hyosciam. gr. iij. M. fiat pil. 4tis horis sumenda è haust. effervescente commun.

Oct. 2d.—Bowels opened three times; urine lighter in colour, but mixed with fæces; he perspired freely after the bath; pain of loins and of right hypochondrium entirely removed; tongue still red, but moist; complains of pain at the pit of the stomach, with a sense of weight and oppression; pulse, respiration, and cough, as on the day before.

C. C. Scrob. Cord. ad ℥x. Rep. Baln. callid. Cont. Cataplasma. Pil. et Mistura.

3rd.—Perspired very freely after the bath, and slept comfortably during a considerable portion of the night; cough much decreased in frequency, and rattles much less; great dulness still existed in the lower part of the right side, and bronchophony was very distinct at the inner side of the left scapula; the tongue was clean, red, and rather dry; he complained of great thirst; urine scanty and turbid, from the lithates, becoming quite clear by moderate heat, and not afterwards coagulating by either heat or nitric acid; pulse 120, soft and compressible; respirations 36, and comparatively easy.

℞ Antim. Potassio Tart. gr. ss.; Hydr. Chlorid. gr. ij.; Pulv. Opii. gr. ss. M. fiat pil. 6tis horis sumenda applicet Empl. Cantharid. lateri dextro etiamque interscapulas. Cont. Baln. et Catapl. Lini.

4th.—Passed an excellent night; aspect much improved; tongue moist, still red, and clean, with prominent papillæ; respirations 35; pulse 124, small and soft; skin comfortably warm and moist; perspired freely after bath; he had no pain, and scarcely any cough.—Pergat.

5th.—Still improving; no change of importance.—Pergat.

6th.—Bowels open only once; appears drowsy; skin comfortably moist; but little cough; no pain; no effect produced by the mercury on the mouth.

Cont. Pil .c. Opii., gr. ¼; Ol. Ricini, ℥ss. st. sumend.; Rep. Baln. et cont. Haust.

7th.—Passed a good night; bowels once relieved by oil; felt so much better that this morning he would sit up in bed and throw off his coverings, by which evidently he had got cold, and reproduced his inflammatory affection; face was flushed; tongue red and dry; mucous rattle much increased; dulness on percussion now existed before and behind, with tubular respiration at the inferior part of right side, and posteriorly on left side; skin hot and dry; pulse 140, sharp, but compressible.

Ol. Ricini, ʒvj. st. Applicet. parti ulceratæ Ung. Hydrarg. Repetantur alia medicamenta.

8th.—Mucous rattles again intense and universal; respiration again 48; passed a bad and restless night; evident enlargement now existed on the right side, and increased dulness on the left side, but he was too ill for minute examination; pulse 120, small and feeble; cough not very troublesome except on attempted deep inspiration; but little expectoration.

Rep. Haust. c. Ammon. Sesquicarb. gr. iij. Empl. Cantharid. Magn. lateri dextro. Hydrarg. Chlorid. gr. j.; Antim. Potassio Tart. gr. ¼. M. ft. pil. 2dis horis sumienda.

9th.—Had a bad night, and complained much of want of sleep; pulse 140, exceedingly feeble; respirations 60; had cold perspirations; expectoration profuse, muco-purulent, and thick, but not viscid; right side increased in size since yesterday; mucous rattle universal; too weak for examination.

Omitt. pil. et alia medicament. Capt. stat. Morphiæ Hydrochlor. gr. ¼, et repetat. vespere si opus erit.

℞ Am. Sesquicarb. gr. iij., Tr. Scillæ et Tr. Camph. C. aa. ♏xx. Decoct. Senegæ, ℥iss.; M. haust. 6tis hor. sumd. Illiniatr. Ung. Hydr. ʒj. femorib. ter die.

11 P.M. Had had a comfortable sleep, but was no better, and he expired at 1 P.M. the next day, being perfectly conscious, and without important change till within half an hour of his end.

Inspectio cadaveris twenty-seven hours after death. — Externally there was evidently considerable enlargement of the right side of the chest, with great dulness on percussion. The head was not opened. Chest: on removing the sternum there was exposed, rather to the right of the median line in the lowest part of the mediastinum, a small defined abscess, entirely unconnected with the inflammation affecting other parts, and containing about ℥ss. of healthy pus. The right pleura contained about two quarts of thick fœtid sero-purulent fluid. The serous membrane itself, and particularly that investing the lung, was covered with a thick layer of firm yellow lymph, arranged in slightly curved almost parallel lines, the spaces intervening between which were comparatively free from effusion. The right lung was compressed to one-third or one-fourth of its natural size, but was otherwise entirely free from disease, even close to the inflamed serous membrane, with the exception of the lining of the bronchial tubes, which was of an intensely red colour from injection, and nearly filled with purulent mucus, but apparently neither softened nor thickened. On the left side the pleura was adherent from very recently effused false membrane, and red from numerous small vessels. The entire lower lobe of this lung was in a state of red hepatization from pneumonia. The upper lobe, excepting at its lower and posterior portion, where it partook of the disease of the inferior lobe, was healthy; but here, as on the right side, the bronchial membrane was of a light crimson hue from injection. The pericardium was partially adherent by recent lymph to the anterior mediastinum; internally it was healthy. The heart was free from the appearance of disease, with the exception of a slight roseate tint of a portion of the lining of the left ventricle. Abdomen: the liver, stomach, spleen, and pancreas, were healthy, and no appearance of disease was presented by the intestines. The left kidney was healthy; the right was large, its surface was irregular, and its cortical substance rather softer than natural; the tubular portion was of a deep purple colour, hard, and full of blood: its tubules were particularly large and distinct, and the sides of one of its calyces were adherent by the intervention of recent but distinct cellular membrane.

The preceding case presented one of the most severe and acute attacks of disease I have ever witnessed, either in my own practice or that of others, whether public or private. When first visited by me, the patient was suffering from intense bronchitis, from pleuritis of the right side, from a small amount of pneumonia in the left, and from rather profuse hæmaturia; from all of which, to my very great surprise, and with a gratification perhaps rarely experienced, except in similar circumstances, I saw him in a few days rapidly recovering. The hæmaturia had ceased, the cough had much decreased, both in frequency and violence, and all pain had been removed; the skin had become soft and moist, and the pulse was reduced considerably in number. To this unexpected and pleasing progress I believe the hot bath greatly contributed, by inducing determination to the skin, and a copious perspiration. But, while thus favourably advancing, the patient needlessly and carelessly exposed himself to cold by throwing off the bed-clothes, and sitting up without proper covering. Most of his former complaints immediately returned with increased violence; the pneumonia of the left side extended considerably; the effusion in the right side rapidly increased, and he died in a few days after the relapse. Though I supposed pneumonia to a small amount existed when I first saw him, as indicated by the pungent heat of the skin, and the dulness under the left scapula, I believed that it was not then nearly equal in extent to that found after death. My reason for this opinion was the absence of the physical signs of the affection in the greater portion of that part of the lung in which it was afterwards found, the evidently recent character of the disease, and the obviously different stages of the inflammation of the pleura in the two sides. Subsequently to the relapse no efficient examination of the chest could be made, and the progress of the inflammation, therefore, could not be then accurately noted, independently of which the weakness of the voice, and the loud bronchial rattles existing throughout the lungs, would have prevented the correct appreciation of two of the most important of the physical indications of the presence of pneumonia, even had a minute examination been practicable. The cadaveric inspection abundantly proved the severity of the complicated disease; and the case is a strong illustration of the care that is required to avoid exposure to cold during the progress of acute affections of the skin, on the one hand, and severe internal inflammations on the other.

SOME REMARKS
ON THE
PLACENTAL TUFTS DESCRIBED BY WEBER;
AND ON THEIR DISTRIBUTION AND SUPPOSED FUNCTIONS.

By J. Knox, M.D.

[*For the London Medical Gazette.*]

When Dr. Lee published, in the Philosophical Transactions, the result of his highly interesting inquiries into the mode of connection between the human placenta and uterus, a result supposed to be unfavourable to the accuracy of the views and dissections of the greatest anatomist and physiologist that ever lived, I took the earliest opportunity of returning to an inquiry which had repeatedly engaged my anxious attention; and seized with eagerness the first opportunity which occurred of re-examining the structure in question.

I need not here recapitulate what were supposed by most persons to have been Mr. Hunter's views on these interesting points; his celebrated memoir must be familiar to all physiologists. Neither does it follow that the generally received notions as to what were the great anatomist's views, may, after all, be the accurate expression of what he meant. Mr. Hunter's occupations were too varied and too serious to permit of his giving to the result of his researches, when committed to paper, that pleasant, flippant, clear (being shallow), off-hand style, so delightfully prevalent in the present day. It is sufficient for me to say here, that Dr. Lee's dissections and observations are supposed by himself, and by many others, to be adverse to those of Mr. Hunter. In this opinion I, for my own part, did not altogether agree. Admitting, however, that the real nature of the connection between the placenta and uterus was still involved in great obscurity, of two facts, and of the certainty of these, I had long made up my mind; first, that minute vessels containing coloured blood do really at all times pass from the uterus to the placenta, or *vice versâ*, but that these vessels had never been fairly traced to their origins; and secondly, that the notion entertained by many that the uterine veins actually enter the substance of the placenta, or at all events reach its surface, together with that other idea that they terminate or commence by open mouths on the inner surface of the uterus, and that they there take up the blood poured into some intermediate cavities, or forced into them by the placenta through the placento-uterine decidua, was a statement, according to my humble belief, at variance with every thing I had seen of these textures; and with all that I believed to be sound in anatomy and physiology.

I am particularly anxious not to be misunderstood, or thought dogmatical; and from having had no opportunity of examining Mr. Hunter's preparations with sufficient care and attention, I felt that although many doubts arose in my mind as to the accuracy of his views, I was scarcely entitled to speak positively respecting the extent to which his dissections bore out his theory. Finally, I found it impossible to reconcile the language of his memoir with what I had myself seen on dissection.

The first opportunity I had afforded me of examining the impregnated uterus, with the placenta adhering and undisturbed, was not a favourable one; but it satisfied me of this, that minute vessels of some kind or other do pass from the placenta to the uterus, and that the mode of the commencement of the uterine veins or sinuses on that surface of the uterus to which the placenta adheres had not been fairly described: this dissection and a subsequent one agreed to a certain extent with Dr. Lee's views; but notwithstanding this uniformity, with which at any other time I would have felt highly gratified, it was impossible for me to persuade myself that we had seen the whole truth; indeed, I preferred Mr. Hunter's views, although they seemed in part to be against the evidence of my own senses. To suppose, for example, with Mr. Hunter, that the uterine veins pass through the decidua to the surface of the placenta, and that the uterine arteries, besides having this course, likewise terminate by visible mouths in these veins, or in the pretended cells of the placenta, were statements quite at variance with every dissection I had made. But it could not escape observation that Mr. Hunter, without venturing precisely to define its nature, had described "a fine spongy substance visible on the surface of the placenta, the interstices of which were filled with a yellow injection which had been thrown into the veins of the uterus." These are Mr. Hunter's own words, in his celebrated memoir on the "Structure of the Placenta." He says, moreover, that the veins of the uterus (and arteries too, if I rightly understand him,) terminate upon these "fine spongy masses."

The next opportunity of examining the impregnated uterus and placenta *in situ* I obtained through the kindness of my most esteemed friend and former pupil and assistant, Dr. John Reid. With a liberality worthy of Dr. Lee himself, he allowed me to examine, for nearly an hour, a large portion of the uterus, with the placenta adhering, of a person who had died of an acute disease, and undelivered.

When I first saw it (March, 1839), it had been laid open, and had been repeatedly handled and examined by others. The light was unfavourable for minute dissections, and it was out of my power to apply glasses of a higher magnifying power than a common pocket lens. What I then saw I shall now record, premising that, as the appearances were new to me, however strongly they recalled to my mind some of Mr. Hunter's phraseology, I informed my morning class that I should at the lecture of that or of next evening explain to them certain very interesting appearances I had just observed respecting the structure of the placenta, and its mode of connection with the uterus; but as I had some recollection that one or two German anatomists had recently made this very subject their peculiar study, of whose labours I had not met with any French or English translation, and which were, therefore, from my unacquaintance with the German language, unknown to me, I should in the interval look hastily over a very useful compilation which had but recently come into my hands, viz. Müller's Physiology, translated by Baly; not doubting but some notice would be taken of these recent researches, if they had really led to important results. I at the same time dictated the substance of my observations to my assistant, Mr. Kelburne King. Circumstances having occurred to prevent my examining Müller's work, the following observations were explained in detail to the class, with a request that, until I had an opportunity of making the examination I had spoken of, I distinctly disclaimed all title to novelty:—

The whole of the structures to be examined were placed, when I first saw them, under clear spirits, and several sections having been made already through and through all the textures, quite into the cavity of the uterus, the examination was begun upon the margin of one of these sections.

On carefully pushing away the placentary mass from the uterus, several textures came into view: to take these in the order they were first looked at I shall commence with the surface of the placenta; I mean, of course, that surface which adheres *mediately* to the uterus. In the structure of the placenta adjoining this surface I could observe nothing more than what I had uniformly previously noticed, viz. minute vessels dividing and subdividing until they were just perceptible under the single lens I used. That these were arteries and veins there could be no doubt, since any separate bundle might be traced backwards to the larger vessels from which they came. In respect to any placental cells or cavities, or large placental sinuses, or decidual spaces, or placental spaces, I may as well say at once that no such structures were ever seen by me, and that I question, as I always did, the existence of such cavities or spaces.

Having traced certain minute branches of these placental vessels to that surface of the membrane interposed between the placenta and uterus (usually called decidua, but obscure in its real nature), the union of this membrane to the surface of the placenta was found to be comparatively firm, whilst its uterine surface adhered so laxly to the uterus, that it might be pushed from it to a considerable distance without destroying the anatomy of the intermediate textures or organs, owing to their natural elasticity. Being fully convinced, as I had been for many years, that to unravel the anatomy of these textures was to discover probably the whole secret of the mode of connection between the human fœtus and its parent, I dissected and observed these intermediate textures with the greatest care. To state in some sort of order what occurred at this point of the inquiry, I shall commence by observing that the minute vessels I had seen in the substance of the placenta passed almost directly through the interposed membrane or decidua in numerous bundles. being bound at the same time to the edges of the apertures, through which they passed by a delicate but firm membrane derived from that surface of the decidua which faces the placenta itself. Having passed through it, some of these vessels were observed still to contain a dark-coloured fluid, which I naturally thought must be blood. So soon as these bundles of vessels had passed fairly through the decidua, they proceeded towards the inner surface of the uterus, enclosed, as it appeared to me, in funnel-shaped tubes, formed of a membrane connected as well with the inner surface of the uterus as with the uterine surface of the decidua. This membrane resembled a serous membrane, but is probably merely a cellular tissue condensed; extremely delicate, semi-transparent, and not unlike the arachnoid. Many other funnel-shaped portions or tubes had already been torn, so as to expose the placental tufts of vessels, and I tore through one or two of these tubes so as to be sure that they partially enclosed the tufts. It now became evident that the placental tufts did not terminate in these funnel-shaped tubes, but proceeding onwards adhered apparently by some means or other to the surface of the uterus itself: it was moreover now evident, that, to ascertain the mode of adhesion of the tufts to the uterus, was the desideratum. Tracing therefore, with every possible care, a bundle or tuft of vessels quite up to the surface of the uterus, it was found suddenly to disappear, plunging into an orifice leading directly into one of the venous sinuses of the uterus. In this sinus or cavity the placental tufts floated, extending a considerable way into the sinus, and having distinct terminations, that is, not uniting or anastomosing, so far as could be observed, with any other system of vessels. I now reversed the dissection: a uterine sinus was laid open more on that aspect which faced the substance of the uterus: it now seemed to me that the orifices by which the placental tufts had penetrated into the uterine sinuses were in no sense either the commencement or termination of the uterine veins, but merely lateral openings in the walls of the sinus; and that the peculiar pen-shaped orifices, described by many anatomists as seen on that surface of the impregnated uterus from which the placenta had been detached, and which had been declared to be the commencement of the uterine veins, shut up by the decidua so long as it is present, were appearances occasioned merely by an incautious dissection—a tearing away, in fact, of the placental tufts of the membrane which connects the tufts to the orifices themselves, and of a portion of the delicate inner wall of the sinus itself.

I now observed that the placental tufts, on entering the sinuses by the orifices I have just described, received a covering from the inner membrane of the sinus, reflected upon the tuft precisely around the orifice. Neither the time nor light permitted my observing whether these tufts were altogether loose within the sinuses, or had adhering points connected with the wall of the sinus; and, in respect to one of the tufts, it did appear to me to anastomose with another tuft which had entered by a separate orifice. The tufts themselves, in so far as I could make out without the aid of the microscope, seemed composed of longitudinal striæ, as if the vessels lay longitudinally to each other, and terminated by rounded extremities.

I may now proceed with the remaining points I purposed considering in this brief note; viz. 1. Whether or not a re-examination of the whole structures, favoured by more leisure and better light, would confirm, modify, or extend, my original observations made in March 1839. 2. Briefly to compare these observations with Müller's abstract of Weber's discoveries and inquiries: to this it was moreover necessary to proceed without delay, in order that the scientific public might have it in their power to decide previous to the publication of Dr. Reid's memoir, in how far these observations of mine agreed, or were at variance, with the discoveries of Weber. 3. To submit a few observations as to the probable extent to which Mr. Hunter's views might be reconciled with these later dissections.

Having obtained, a few days ago, a portion of the same uterus and placenta on which my original observations had been made, improved however in this respect, that since the time I first saw it some fine vermilion injection had been thrown into the placental (umbilical) vein, I re-examined with a common lens, and under direct sun-light, these structures, placed as usual under clear water or spirits: again tracing the placental tufts through the decidua to the surface of the uterus, they were seen to enter the orifices in the walls of the uterine sinuses, after being enclosed in the funnel-shaped membranous tubes already described; in short, the only additional fact I was able to make out was the presence of some extremely minute injected vessels in the substance of the uterus. These were quite new to me, and unexpected; for, on being traced to their origin, they were found to be placental vessels; and that they were continuous with the umbilical vein, and of the same nature as the vessels composing the placental tufts, was inferred from this, that they contained seemingly some of the red coloured injected material which, as I have already said, had been thrown only into the umbilical vein. Thus another enigma comes to be added to the physiology of these structures, which, so far from clearing up the doctrines deducible from existing facts, tends rather to embarrass the whole. Here, then, is a subject clearly open for future investigation.

I next examined the uterine vessels, and more especially the uterine arteries, respecting the mode of termination of which there existed so many contradictory and unwarranted assertions; unwarranted, I mean, by any direct or intuitive evidence. As it had been asserted by Mr. Hunter, and by many others (amongst whom I believe I am entitled to include Dr. Reid), that these arteries terminate by open mouths of about the size of half a crow-quill, in the uterine veins, whether these veins be considered as terminating precisely at the surface of the uterus, or extended outwards, as Mr. Hunter thought, through the intermediate textures to the surface of the placenta, I gave my utmost attention to the careful dissection of several of the curling arteries of the uterus, commencing at a point where they were of considerable size, and easily distinguishable without any lens, and tracing them onwards towards the surface of the uterus, until they became so minute as to be invisible under a strong pocket lens, and therefore at least twenty times smaller than the branches alluded to by Mr. Hunter, without in a single instance being able to satisfy myself that a single branch of any calibre whatever did really terminate in a vein. In fact, they divided and subdivided until they entirely disappeared. Not content with these repeated dissections, I obtained, through the kindness of Dr. Marr (Lecturer on Midwifery in Queen's College, Edinburgh), the uterus of a person who had died a few days after delivery of puerperal fever. A fine size injection, coloured with vermilion, was thrown into one of the uterine arteries; the uterus was then laid open, and many of these vessels traced through the substance of the uterus to the rough inner surface, to which it was evident the placenta had adhered. A loose cellular adhering substance marked this spot, together with a few clots of blood imbedded in it. Long before reaching this substance the uterine arteries had divided and subdivided to a great extent; many minute branches passed from the surface of the uterus into the cellular and gelatinous-looking substance adhering to its inner surface, ramifying in it in long fine filaments, out of which, however, the injection had, generally speaking, not been effused. Had the placenta been present, with its decidual membrane, I think it not unlikely but that these vessels might have been traced into it. In the meantime I ought also to remark, that not a particle of the coloured injection had escaped into any of the uterine sinuses. After this I conceive I have a right still to conclude, notwithstanding any authority to the contrary, that the mode of termination of the uterine arteries is altogether unknown.

2d. At the time I originally made these observations, I withheld their publication on the grounds already stated at the commencement of this note, and fully explained to my class at the time, viz. that they seemed to me to have been anticipated in all essential points by Weber. In what respect they may be found to coincide with Dr. Reid's more elaborate researches into the same subject, I cannot pretend at present to say, having seen but a very brief abstract of the memoir (in the Athenæum) read by him to the meeting of the British Association held during the present autumn in Glasgow. I have also been further informed by him, that the abstract is extremely imperfect. At present he considers his views to be quite distinct from those of Weber, whose original memoir he has had the advantage of consulting. This memoir I have never seen, and beg leave therefore to quote the passage contained in Müller's Physiology, Part i. p. 249, from which I drew the inference that my own researches coincided with those of the distinguished German:

"*Absorption by organic attraction.*—The question whether the blood in the capillary vessels, or these vessels themselves, exert on certain substances an attraction which differs in its nature from any accounted for by physical laws, is quite distinct from the one above discussed. There is only one part of the body in which this kind of attraction certainly exists, and that is the capillary system of the placenta. The existence of lymphatics in the placenta and umbilical cord being quite problematical, the transmission of nutritive fluids from the mother to the child must be effected by means of the capillary vessels of the placenta. There is no direct communication between the vessels of the mother and those of the fœtus; the sole mode by which the uterine arteries terminate is by becoming continuous with the radicle uterine veins; and, on the other hand, the fœtal arteries of the placenta have no other mode of termination than in the commencing fœtal veins of the same part. Weber has given a very interesting description of the mode in which the placenta and uterus are connected. The finest ramifications of the placental vessels are distributed in the tufted processes on the maternal surface of the placenta. The arteries ramify in the tufted villi, and terminate at the extremities of the villi by direct inosculation with the radicles of the placental veins. Bundles of these tufts of villi project into the cavities of the large veins, in which the maternal blood flows on the inner surface of the uterus. From this arrangement of the tufts, and from the delicacy of the coats of the uterine veins, the fœtal blood circulating through the capillaries of the placental tufts is freely exposed to the action of the venous blood of the mother, and probably attracts from it some of the matters dissolved in it."

Now that my attention has been particularly directed to the above quotation, I certainly do perceive contradictory parts and assertions, which can scarcely be supported by a very strict anatomy; these escaped me when I first perused it. Still I am not disposed to consider these seeming contradictions as really affecting the merit of Weber's discoveries.

3dly. It now only remains that I should endeavour to shew in how far Mr. Hunter had seen and understood these textures, as we see and understand them now; but to do this satisfactorily would require a considerable extent of comment, which I have not leisure at present to attempt. Mr. Hunter has stated distinctly, 1st, That the placental vessels terminate in a fine spongy mass (placental tufts, Weber); 2dly, That the uterine veins terminate or commence on the surface of this spongy mass; 3dly, That the uterine arteries, whatever other terminations they may have, do also open upon the surface of this fine spongy mass, and into the uterine sinuses. I do not mean to deny that there are several seeming, if not real, contradictions in many passages of Mr. Hunter's memoir; that he mistook for veins the funnel-shaped membranous processes enclosing the placentary tufts on their way to the uterine veins; and that he fancied he saw, although I cannot believe that he did, the actual termination of the curling arteries of the uterus, &c. With these obscurities and difficulties, which after all may be merely in terms, I have nothing to do; but it is my firm conviction that Mr. Hunter saw precisely what Weber and myself have seen, and that he wanted merely sufficient confidence in the theory of "absorption by imbibition," to have expressed himself in totally other terms than what he did.

Newington Place, Edinburgh,
Oct. 28, 1840.

IODIDE OF POTASH IN PARALYSIS.

To the Editor of the Medical Gazette.

Sir,

If you consider the following case worthy a place in the pages of your valuable periodical, you are at liberty to insert it.—I am, sir,

Your constant reader,
ISAAC WATMOUGH, C.M. M.D.

Porklington, Yorkshire,
Oct. 27, 1840.

Mrs. D., aged 55, of stout habit and sallow complexion, immediately after breakfast on the 3d February last became speechless, and paralytic on right side. When I arrived she had just been seized with a convulsion, which again recurred. She was bled to twenty-five ounces, and a smart purgative administered, and leeches to the head. Convulsive attacks continued, with distortion of muscles of face and right eye. In the evening convulsions ceased, complete paralysis of right side remaining.

Next morning (4th), she was again threatened with a return of the convulsion; and although the pulse was feeble and compressible, with great paleness of countenance, I recollected the excellent remark of that high authority, Dr. Abercrombie, of Edinburgh, viz. "Weakness of the pulse and paleness of the countenance we have seen to be frequent symptoms of the worst forms of sanguineous apoplexy:" I bled her to syncope, and blistered the nape of neck, used cold applications to the head, with sinapisms to the inferior extremities.

On the 5th, bowels well acted on, but no improvement; there is a great tendency to coma. She was now bled to eight ounces, which made her faint; she soon rallied to her former state.

6th.—Symptoms still continuing, the iodide of potash was ordered in three-grain doses three times a day, and in four days there was a marked improvement. Three weeks after the use of iodide having been regularly attended to, she having taken daily from nine to twelve grains per day, she can hold a needle in the right hand, but is not able to feel it. This treatment was persevered in for three weeks longer, when she was completely restored to her usual state of health, every symptom of paralysis having disappeared. I saw her lately, when she informed me that she was sometimes affected with headache, which was always removed by a little purgative medicine.

MEDICAL GAZETTE.

Friday, October 30, 1840.

> "Licet omnibus, licet etiam mihi, dignitatem *Artis Medicæ* tueri; potestas modo veniendi in publicum sit, dicendi periculum non recuso."
>
> CICERO.

MR. WARBURTON'S BILL.

THE letter signed "A Physician," which appears in the present number, and some others previously inserted, as well as certain observations which we have heard fall in the medical world, induce us to recur to this subject, which, when we last wrote on it, we had intended to leave without another word to the fate which all parties, including even its author, anticipate for it.

Let us first set ourselves right with our correspondent, Dr. Crosse, who, in his praise of the proposed system of registry, imagines that he has us for opponents. So far is this from being the case, that he will find that in the number for the 2d of October we said that it "would undoubtedly be advantageous to possess the register for other purposes than that which is contemplated in the bill, namely, the election of the officers of the new faculty." To this opinion we still adhere; but is it not absurd that such a registration should be made "rather an expensive affair?"—that when lists are kept by each licensing body, and may be ordered to be published by them in one general volume, an extravagant system of registrars and subregistrars should be entered upon? Why, the expense of this registration, added to that of working the rest of the bill, is expected to be so considerable, that if a tolerably high tax levied on each practitioner be not sufficient to defray it, a vote of Parliament is to supply the deficiency, till (for Parliament will not stand many such annual votes, witness the case of the London University) the tax can be increased.

The advantages of an authentic list of the whole medical profession, stating the residence, the qualifications, and the dates of the licenses of each of its members, would certainly be considerable, and worth a small sum levied once or even annually on each person registered in it. But we repeat that we should "be taxed to purchase chains for ourselves," if we had to contribute any thing, however small, to the maintenance of such a bill as Mr. Warburton's, though it did bring with it the single solitary benefit of a registration. Besides, the whole benefit may be obtained, as we have already said, by the publication of a general list of the members of the several Colleges and Halls. Such a list is now published or made up annually by each of them separately, and the expense of uniting them all in one, and of including therein the names of all who were in practice before 1815, if shared among all the several licensing bodies, would be scarcely perceptible to any. At all events, it could be defrayed by the addition of a few shillings to each diploma or license hereafter granted. A respectable publisher might thus, for a few shillings, undertake to supply every one in the country, who has any interest in the matter, with all the benefit promised by Mr. Warburton's bill.

As for the rest of the bill we believe it has not met with the unqualified approbation of a single member of the profession. There are a few who think it might do *some* good, but their faint praise condemns it more certainly than the loud abuse of its hottest opponents, who, singularly enough, are to be found in the ranks of those who were expected and had promised to defend it. It is not easy to count the number of pieces into which the most active advocates of medical reform have split. A large, and the most respectable section, including those whose notions of reform were limited to the destruction of the monopoly of the highest medical honours by the ancient Universities and the College of Physicians, and to the improvement of the general standard of medical education, went off to the London University. The members of this section are now, in the minds of their former co-mates, ranked with the vilest of monopolists, and will evidently be the objects of their direct vengeance, should the true reformers—that is, the party not yet possessing their desired places of influence—ever come into power.

This remaining party has, of course, suffered some loss by Mr. Warburton's secession. He will take, no doubt, a few of the profession with him — he would not be so foolish as to endeavour to force a measure on a body of which no one member was his friend—but, what is more important, he will take with him a little parliamentary interest, and totally break up the small party that the two other reformers who indorsed his bill were able to form in the House. Mr. Hawes also, who has signified his intention to try his hand at legislation, with the doctors for his subject of experiment, will probably effect a rupture among the remaining ranks, similar to Mr. Warburton's; and small indeed will be the remnant left either in the profession or in parliament to Mr. Wakley.

Can a more absurd picture, or one more insulting to our profession, be drawn, than that of three members of the House of Commons agreeing to bring in jointly a certain measure, and, before it has even passed its first stage, separating and forming three distinct parties, as hostile to each other as to those they used to call their common enemies? Yet thus it is with medical reform: the medical profession bill, brought in by Mr. Warburton, Mr. Hawes, and Mr. Wakley, conjointly, has only served to make way for the three distinct and opposing bills of its several authors.

The utter and signal failure of the schemes which have been in process of development for so many years, cannot but have one most desirable effect,—that of showing that, though the older institutions may have their faults, (and we appeal to our readers whether we have ever concealed or palliated any that really existed and deserved the name of faults,) there is no good to be hoped from those whose only object is to overthrow them; hoping that they themselves may gain some distinction by the change. Unfortunately for the cause, the chief of those who have seats in parliament, and who clamour so loudly for *medical* reform, are known as general radicals, and it is only, as they say of Mr. Warburton, "accidentally, or, as it were, incidentally," that they direct their passion against medical institutions. Place them in any other possible or imaginable situation, and such is their thirst for change, that, though they were in an Utopia, they would still clamour for reform. Place the laws of creation in their hands, and they would pretend to find them defective and unequal; they would see whether all the planets might not be made to move in one orbit, as well as, they are sure, all doctors might work in one faculty.

From such mere reformers for the sake of change we repeat no good can ever be expected; if there were in their ranks any one man who would point to any institution in this country, and say that he would take that as a model for others of the same kind, or one who would conscientiously confess himself contented with any thing as it is, on this side the channel, we might believe his opinion on the state and improvements of the profession to be worthy of attention; but as far as we know there is not one such; and we believe, were their wishes established, their love of change would not be satiated till their own institutions were consigned to destruction.

Of this we believe the small body of ultra reformers have at length contrived to convince the great body of the medical profession; and henceforward the desire of the latter will only be, that existing institutions may continue to carry on in themselves those gradual changes which the alteration of circumstances, and the slowly improving state of society generally, require. Of late years there has evidently been no disposition to slackness in effecting these improvements; on the contrary, it might be fairly questioned whether a desire for popularity has not, in more than one instance, put prudence to silence. So long as an honest medical press exists, there can be no fear but that this progressive improvement will continue; and that in each of the several branches of the profession, (which are so adapted to the condition of the public, that were their differences obliterated to-day they would be virtually if not nominally restored to-morrow,) the best possible security both of the public and of professional interests will be obtained. As we lately showed, the progress of the profession, under the government of the existing institutions, has been most remarkable; so that there is scarcely a member who does not, unless for his own misconduct, occupy a much higher rank in society than his predecessors of the same diploma; and from the very nature of things it is certain that we must continue in, or rise above, this relative position, if only the existing institutions are ready to make the necessary improvements in their examinations, and in other parts of their management, as often as occasions arise.

To suggestions for the improvement of the remaining defects in the medical institutions we shall not cease to give our impartial and anxious attention, and we would point to the letter of our correspondent, inserted to-day, as a model for the tone and temper with which such suggestions may be best made. Some of the recommendations which it contains are most judicious, and amongst them are several which we have constantly advocated. His scheme of education is not materially different from that now adopted, and in which we believe there is no need of any general change, though some of its details might, as we have at different times shown, be advantageously altered. The propriety of preventing druggists from practising without licenses must be evident to every one who considers the important functions that that class now performs. Brewers and bakers are prohibited by heavy penalties from poisoning, by never so slow degrees, their customers; but druggists may give, and even recommend and prescribe, their poison without restraint. It is obviously incompatible at once with common safety and common fairness, that the druggist should be allowed to be a medical practitioner without a license.

We earnestly recommend to our readers that part of the letter which contains the suggestions respecting the demand to show his license that it is proposed to make on each practitioner, and the mode in which punishment should be inflicted on the unqualified. We shall probably take occasion to recur to this part of the subject; meantime we may observe, that the suggestions of our correspondent on these points seem to contain the elements of much that would be advantageous.

MEDICAL REFORM.

To the Editor of the Medical Gazette.

Sir,

The reform of the medical profession in Great Britain and Ireland is a subject which has so long occupied the public mind, and regarding which there seems to exist so intense an anxiety in a large number of the profession, that foreigners may be led to form an exceedingly low estimate of the medical men of this country. But it must be admitted that in no quarter of the globe are physicians and surgeons better paid, and more truly and justly respected, than in England: and, on the other hand, if we turn to the British army and navy, and the establishments of India, and the other parts of our vast colonial empire, our medical officers of every description will bear a triumphant comparison with those of every other government in the world. Therefore, let us not believe that the medical profession under the British crown, are the degraded caste which we might be led to suppose, from all which has been said on the necessity of medical reform; nor let us think that a remedy for existing evils is to be obtained by throwing this mass of supposed incongruity and imperfection into the crucible, and fusing it into *one faculty*. I will, however, admit, that there is room for improvement in the medical profession of this country; nay, it appears to me that great amelioration may be effected, without considerably disturbing existing institutions, or destroying the several orders of the profession as it is now constituted.

I beg to offer, through the medium of your journal, a few suggestions, which may be considered as the heads of a bill for medical reform; and, which it is hoped, will remedy some serious defects in our present system, and in no way obstruct further improvements.

I. That the medical profession shall continue as at present, to consist of physicians, surgeons, apothecaries or general practitioners, and druggists.

II. That the present medical licensing bodies shall continue to exercise their functions, but that they shall be restrained from granting diplomas or licenses, except under the following provisions, in addition to such others as the several licensing bodies may deem proper:—

1. Requirements for the degree of M.D. and the title of physician:—A liberal preliminary education; five winter sessions of medical study in some University, or in a recognised school of medicine, including all the branches of medical instruction, both theoretical and practical, excepting operative surgery.

2. Requirements for the diploma and title of surgeon:—A liberal preliminary education; four winter sessions of medical study as above, but a greater portion of time devoted to anatomy and surgery, and perhaps the exclusion of botany from the required course.

3. Requirements for the diploma of apothecary or general practitioner:—A sufficiently good preliminary education; three winter sessions of medical study as above; the time being chiefly devoted to anatomy, chemistry, materia medica, surgery, midwifery, theory and practice of medicine, and hospital attendance.

4. Requirements for the license of druggist:—A competent knowledge of medical Latin, and attendance on recognised courses of chemistry, materia medica, pharmacy, and botany.

III. That no physician's diploma be granted without three separate examinations, nor any surgeon's without two. All the licensing bodies to publish annually, in one or more newspapers, a list of the individuals to whom they have granted diplomas, or licenses, and a certified statement of the number of candidates rejected within the year. The licensing bodies to have the power of replacing by such eminent medical men as they may choose, those of their examiners who may be incapacitated by age or infirmity. The examiners to be paid a fee for each examination, whether the candidate be approved or rejected.

IV. That from and after the passing of this act no medical corporation shall have the right to prosecute any medical practitioner; and that this power shall thereafter be vested in the civil magistrate.

V. That the chief magistrate of each county and city shall call upon the practitioners of medicine and surgery, within his bounds, to produce evidence that they possess diplomas or licenses from one or other of the legally authorised medical examining bodies, or that they were medical practitioners previous to the year 1815: and in default of such evidence, the civil magistrate shall prohibit the unlicensed individual from practice under the penalty of — for each offence.

VI. That the name and designation of each practitioner, who has satisfied the magistrate that he is duly qualified, shall be recorded in a book to be kept for the purpose, on payment of a moderate fee.

VII. That all persons offering themselves as medical practitioners shall, previous to commencing practice, exhibit to the chief magistrate of the county or city in which they wish to practise, their respective licenses, which, if satisfactory, shall be recorded in the medical register of the city or district, on payment of a moderate fee; but otherwise the individual shall be prohibited from practising, under a penalty. An appeal against the judgment of the chief magistrate may be made to a jury at the assizes, and their decision shall be final.

VIII. That after the passing of this act no person shall be entitled to open a druggist's shop without a druggist's license, or that of a medical practitioner, and in default of such license he shall be prohibited, under a penalty, from selling any medical substance.

IX. That persons duly authorised to act as physicians, surgeons, or apothecaries, shall be entitled to practise in any part of the British empire, and it shall be competent for physicians and surgeons to act as general practitioners. But should any physician, surgeon, or apothecary, be convicted before a legal tribunal of a disgraceful crime, he shall thereby be deprived of his license to practise in any department of the medical profession.

X. All the existing medical examining boards shall be empowered to grant licenses to druggists; and the colleges of surgeons shall be entitled to grant licenses to dentists, the candidates producing evidence that they have attended one course of anatomy and physiology, and received practical instruction in the art of the dentist. None other but surgeons and licensed dentists shall be entitled to practise this branch, unless already engaged in it; the civil magistrate having the same power as in the case of medical practitioners.

XI. That medical degrees granted by foreign universities shall not confer any right to practise in Great Britain or Ireland, unless among the natives of that country where the diploma has been obtained.

XII. That all persons applying for letters patent on account of inventions in the composition of drugs, shall be required to specify distinctly the ingredients and the mode of compounding each medicine, and a record of the same shall be kept for public inspection. Should any concealment or fraud be practised, the person so offending shall incur a penalty of —, and forfeit his letters patent.

The same specification shall be required, under the same penalties, from all proprietors of patent medicines, after twelve months from the passing of this act.—I remain, Sir,

Your obedient servant,
A Physician.

October 16, 1840.

ON THE PROPOSED TAX UPON THE PROFESSION.

To the Editor of the Medical Gazette.

Sir,

It was not my intention to have troubled you again thus early, had not the letter of Dr. Crosse, of Norwich, inserted in your number for October 16, demanded, in my opinion, immediate notice; but on this occasion I take not up my pen in anger. neither shall my ink be gall. I will merely request the Doctor to reflect awhile on the position of the medical world, and compare it with that of the other learned and liberal professions. If he will condescend thus far, I have little doubt but his opinion relative to the proposed registration and tax will be essentially changed. With regard to the registration I need say nothing more, having in my letter of last week entered so fully into the subject; but the tax, I must repeat, I consider highly objectionable. Have we not already paid the sum demanded by the College on obtaining the diploma? and is not that diploma a license to practise? If that license is to be annulled, who will present himself for examination? and what will become of the Royal College of Surgeons? Dr. Crosse thinks we ought to be taxed because the lawyers are taxed; but the cases are by no means parallel. The law is a much more lucrative profession than medicine, and leads to higher honours. A young man entering the legal profession may look forward to becoming, on some future day, Lord High Chancellor, or the first Minister of the Crown; but what has a young medical aspirant to look forward to? Let him examine the Court Kalendar; he will not find either physician or surgeon amongst the peers of the realm. We must be content to fag on year after year; and after many years' fatiguing practice—fatiguing both to body and mind (more particularly if, like Dr. Crosse and myself, he be a provincial practitioner), what has he gained? Does he retire with an ample fortune? Are there high titles, and lucrative situations of honour and distinction, to which he may aspire? or does he die in distressed circumstances, leaving a widow and family destitute? When Dr. Crosse considers this, I think he will change his opinion, and agree with me, that, instead of being taxed, we ought rather to be rewarded.

Of all the liberal professions that of medicine is undoubtedly the lowest, in respect of honours and lucrative appointments. Why this should be, I know not; and it certainly redounds little to the credit of so powerful and highly civilized a nation as Great Britain that it should be so. The Church (I crave pardon of its members for placing it after the law; but Dr. Crosse having instanced the law, induced me there to commence)—the church, lamentably ill as many of its functionaries are provided for, is far preferable to physic. How many of its lower orders, little dreaming of it at the commencement of their career, have risen to be bishops. The army and navy have the greatest honours bestowed upon them in the power of the Sovereign to grant; and that they truly merit them none will deny; but how are their medical officers rewarded, without whose assistance thousands would have perished, who are now in the full enjoyment of life and health? Without a surgeon, what captain of a man-of-war would take his ship to sea? Without a surgeon, what colonel would lead his brave followers to the field of battle? Without a surgeon, would Captain Parry have ventured on the polar expedition? Where are all these surgeons now? Have they titles, and honours, and lucrative appointments? Do we see them fluttering round the throne of the Sovereign, and basking in the sunshine of royalty? No; they, with probably a very few exceptions, are left to their own resources: many of them, deprived even of their half-pay, are at this moment fagging in country practice, and barely obtaining a decent maintenance.

I hope when Dr. Crosse looks at the argument in the light I have now placed it, he will, instead of favouring the idea of a tax, use his best endeavours really to benefit the profession to which he belongs, by raising them to that position in society which they ought to occupy.—I am, sir,

Your obedient servant,
G. Harvey.

Oct. 20, 1840.

CLINICAL LECTURES,

By W. Davidson, M.D.,

One of the Physicians to the Glasgow Royal Infirmary, and Lecturer on Materia Medica.

ANEURISM OF AORTA BURSTING INTO THE ŒSOPHAGUS.

David Harrison, æt. 39, weaver, admitted 29th of June, 1840, complains of pain, feeling of weight and constriction in epigastrium, which extend along sternum to top of chest. Some cough, accompanied with palpitation and dyspnœa on the slightest exertion; slight mucous expectoration.

Is affected with frequent vertigo and faintish fits, and in the act of deglutition has a feeling of constriction or obstruction at top of sternum. Extremities affected with pricking and numb sensations: he is occasionally troubled with headache, and his sleep is disturbed with dreams. Skin cool; tongue white; bowels slow; pulse 84, of moderate strength; chest sounds well on percussion, and slight bronchitic ronchi are heard on both sides; impulse of heart is somewhat increased, its action regular, and second sound is converted into a prolonged rasp, which is also heard along the course of the large vessels as far as shoulders, and very distinctly, but mixed with a souffle, at top of sternum. A very distinct sound, between the sawing and bellows murmur, is heard along the course of the abdominal aorta accompanying its action. A slight souffle is heard over brachial and femoral arteries. Has complained of the thoracic pain for three, but first observed the palpitation one month afterwards.

℞ Submur. Hydrarg. gr. xii.; P. Opii. gr. iv. M. Fiant pilulæ xii. una capienda ter indies.

Feb. 3rd.—For two days has been very hoarse, and is troubled with a stridulous cough, and difficulty in expectoration. Second sound of heart is accompanied by a very loud cooing murmur, which masks the rasp, and it is heard over the whole of anterior and part of the posterior surface of chest. Some pain on pressing larynx; sputa thin and watery. Very loud sibilant ronchi are heard over the whole of chest. Pulse 100, full.

Venesect. ad. ℥xx. App. Emp. Vesicat. sterno et cervic. anter.

Feb. 4th.—Percussion of anterior and superior parts of chest very clear; not so much so in submammary regions. The cooing murmur which accompanies second sound of heart does not extend much beyond the cardiac region, and there is also a slight rasp present to-day. Cough very stridulous; expectoration very difficult, being still thin and glairy; loud sonorous ronchi are heard over whole chest, not so loud and harsh posteriorly as anteriorly; cooing murmur of heart, heard in both supra-scapular regions. Twenty ounces of blood were drawn from arm, and it was slightly buffed. Pulse 100, of good strength; bowels regular; tongue clean, moist.

℞ Ol. Ricin. ℥i.; Submur. Hydrarg. gr. iv. Misce bene. Cap. Mistur. statim.

Abstrah. ℥xii. Sang. nucha cucurb. cruent.

Feb. 5th.—Percussion of anterior parts of chest clear; cooing murmur of heart in cardiac region much less distinct, being accompanied by a slight rasp, but is heard over nearly the whole anterior part of chest; percussion of back pretty clear, except in right scapular region, where it is slightly dull. Cooing murmur still heard in supra-scapular regions, but it is much less distinct. Sonorous rales are still heard over whole of chest, but are not so coarse, particularly in its posterior regions. Voice still very stridulous; expectoration not quite so watery; pulse 90, of moderate strength; tongue whitish, moist.

Feb. 6th.—Cooing murmur less, and rasp more distinctly heard; voice less hoarse and stridulous; complains of dull pain in chest, anteriorly, on coughing; expectorates a thin mucous fluid; pulse 86, moderate.

Abstrah. ℥x. Sang. pector. cuc. cruent et postea app. Emp. Vesicat. Cap. Ol. Ricin. ʒvi. Cont. Pilul.

Feb. 7th.—Eight ounces of blood drawn by cupping; pulse 86, soft; pain of chest relieved; tongue whitish; feels much easier frequent stools from oil.

Feb. 8th.—Mouth affected; tongue tolerably clean and moist; pulse 84, of moderate strength; sonorous ronchi much diminished, and percussion of chest is prett clear. Cooing murmur of heart is stil heard in cardiac region, and in anterior and superior regions of chest, but the rasp is much more distinct; voice improving; cough less; bowels regular.

Omit. Pilul. Cap. Ol. Ricin. ℥i. Hab.
Vin. Ipecac. gtt. xx. 4ta. q.q. hora.

Feb. 10th.—This morning at four o'clock was seized with hæmoptysis, hæmatemesis, and feeling of weight in thorax, nearly producing suffocation. When seen by clerk the feeling of suffocation had in some degree subsided, having continued only a few minutes; but expectoration of blood lasted for about an hour, and the patient may have lost about eight ounces. Acetate of lead was prescribed. Patient recovered from this paroxyism, and remained nearly in the same state as reported on 8th of Feb. until 11 o'clock A.M. when the hæmorrhage returned with great violence, and he died in about two minutes.

Inspection. — *Chest:* The lungs were bulky, very light and crepitant throughout their whole extent. The mucous membrane of the bronchial tubes was reddened, and their cavities filled with blood, which was coagulated in a tubular form. Some loose coagula were found in trachea and large bronchi. The heart was considerably enlarged, from hypertrophy of left ventricle, and dilatation of cavities of right side. The valves of heart were all healthy. The arch of aorta was very much dilated, forming a kind of pouch. Immediately below the point where the innominata and subclavian arteries are given off, there was a circular opening, having smooth round edges, which could admit the finger, communicating with a sac, of a somewhat triangular shape, situated between aorta, œsophagus, and trachea, and about the size of a small orange. On posterior wall of this cavity there was an irregular ulcerated opening, about the same size as former, and leading into œsophagus, about six inches from stomach. The aorta throughout its whole extent was considerably dilated, and studded over with large atheromatous deposits, which gave the inner coat a feeling of roughness, in some situations. *Abdomen:* Stomach enormously distended, and when opened was found to contain a firm clot of blood, of about four pounds weight. Some loose coagula in duodenum; mucous coat of stomach, and commencement of large intestines, somewhat ecchymosed Liver large, natural in colour, slightly granular in texture. Kidneys pale-coloured and granular.

REMARKS.—In this case there existed very considerable difficulty in forming a correct diagnosis. There were, on the one hand, the signs of hypertrophy of the heart, and valvular or other disease of the aorta; and, on the other, some of those which accompany aneurism of this vessel. As belonging to the first, the impulse of heart was increased, and a very distinct rasp accompanied its second sound. As belonging to the second class of symptoms, a distinct rasp was heard in the large vessels as far as shoulder, and more distinctly, but mixed with a souffle, at top of sternum. A sound between the sawing and bellows murmur was also heard along the course of the abdominal aorta. To these may be added the general signs, in the constriction in the chest, and feeling of obstruction at top of sternum, and difficult deglutition. The other pectoral symptoms were common to both affections. When admitted he had slight bronchitic symptoms, but these increased to a great extent in the course of about three days, the inflammation extending to the larynx, and accompanied with high febrile excitement. The general and stethoscopic signs clearly indicated a very general and pretty intense bronchitis and laryngitis. The most remarkable symptom, attending the bronchitic affection, was the substitution of the cooing murmur in the heart for the former rasping bruit. This cooing sound constantly accompanied the second sound of the heart, and at first completely obscured the rasp. It was heard most distinctly in the cardiac region, but it was also heard very distinctly in every other region of the anterior chest, except at its inferior margins; being loudest in the region of the heart, and decreasing as the distance from this organ increased. Dr. Hope, in his valuable work on the Diseases of the Heart, states that "the musical bellows murmur is a perfect note like whistling or cooing. In the case of a patient who applied to me for 'a noise in the chest,' I heard it at the distance of two feet. In a case precisely similar, which occurred to Dr. Elliotson, there was a very large and long vegetation in the mitral valve. I suspect, however, that the sound may possibly reside in the bronchial tubes, being created by the pressure of the heart during its systole, for I have several times heard it in the superior parts of the chest during the impulse of the heart, and then only. If this be true, it would be suspended, or at least modified, by holding the breath, or by making a complete expiration." This theory of Dr. Hope is a very natural one, and we were at first disposed to adopt it as a satisfactory explanation of the cooing sound in the chest of our patient; for this murmur was not observed until the bronchitis became severe, and became less distinct as this affection began to decline; but on causing him to suspend his respiration, no suspension, or the least modification of the sound, was discoverable. An imaginative person might found an hypothesis upon the alteration of sound which might be produced by the ulceration which was going on between the aneurismal sac and the œsophagus; but we apprehend that a more rational explanation of it may be drawn from the atheromatous state of the aorta; and this view is supported by other cases which have come within the sphere of our observation, although we are far from thinking that they alone can determine this obscure point. The following is a case in point:—

Alexander M'Cale was admitted into the Glasgow Infirmary, July 2nd, 1840, complaining of pain in the right hypochondrium, some cough, great dyspnœa, anasarca of feet and legs. Countenance sallow, pulse 80, full, slightly jerking, skin hot, tongue white and dry. Percussion of left anterior and inferior regions of chest duller than those of right, except in right submammary region; and the respiration was somewhat bronchial in these situations. A thrilling vibratory motion is observed in cardiac region, and impulse of heart is increased. Both sounds of heart, particularly the first, accompanied with a cooing murmur, which is heard very distinctly over whole of left side, less so over right and in both carotids. Percussion of back rather dull, except in right scapular region; respiration somewhat bronchial in inferior dorsal regions, a little indistinct in both scapular. Cooing murmur heard double in left scapular region. Urine scanty, and a trace of albumen discoverable by the application of heat and nitric acid. This patient died on the 7th of July, five days after his admission; and the following were the post-mortem appearances:—

Inferior lobes of both lungs were reddish, engorged with a sero sanguineous fluid, and very slightly crepitant; bronchial tubes contained a mucous fluid, and their inner membrane was somewhat reddened. Heart very much enlarged, its left ventricle being enormously hypertrophied and dilated; the right side of heart seemed also to be somewhat hypertrophied and dilated. Considerable atheromatous deposits over whole surface of thoracic and abdominal aorta, and some were cartilaginous at the commencement of this vessel, immediately above its semilunar valves. There was also slight dilatation of the arch of aorta. Right kidney exceedingly hypertrophied, and its tubuli very much obliterated. Left kidney atrophied so much, that the cortical part only remained, and it contained several cysts. Liver very hard.

In this last case the cooing sound was equally distinct and remarkable as in the former one; and it underwent no suspension or modification by the patient holding his breath; and though the bronchial tubes were found slightly reddened after death, there was no peculiar symptom of bronchitis present which could not be accounted for by the pneumonic engorgement of the lungs. The atheromatous and cartilaginous state of the aorta must therefore be considered the most probable origin of the abnormal sound in this case.

[To be continued.]

PURGATIVE EMULSIONS.

It is a common and a just complaint, that elegance of prescription is too little studied. The following emulsions from the French Codex will, therefore, prove acceptable to many of our readers.

> Take of the resin of jalap, twelve grains; white sugar, an ounce; orange-flower water, two drachms; common water, four ounces; and half the yolk of an egg.

Triturate the resin with a small quantity of the sugar, so as to reduce it to a very fine powder; add the yolk of egg gradually, and triturate for a long time, in order to divide the resin perfectly; then add the remainder of the sugar, and the water in small quantities.

There is a similar emulsion made with twelve grains of scammony, four ounces of cow's milk, half an ounce of sugar, and two drachms of cherry-laurel water.

The last preparation is made with two pounds of the fresh leaves of the Cerasus Lauro-cerasus to four pounds of water, which are to be distilled, until two pounds of the distilled water have been obtained.

On account of the depressing effects of this remedy, we apprehend it would be better, in many cases, to substitute orange-flower water, as in the previous formula.

TREATMENT OF STRANGULATED HERNIA.

Dr. Warnekе recommends the following means, when those usually employed for the reduction of strangulated herniæ have failed. The patient is to take the following:—Opium, two grains; powdered belladonna root, four grains; sugar, four scruples. To be divided into eight powders, of which one is to be taken every half or quarter of an hour. The hernia is to be covered with a warm poultice, containing powdered belladonna, and bandages are to be placed pretty firmly round the upper part of the patient's thighs, close to the abdomen, to retard the return of the venous blood from the lower extremities, and render bleeding unnecessary. The author declares that by these means all the symptoms of strangulation are speedily removed, the patient falls into a quiet sleep and a profuse sweat, after which the hernia will be found soft and easily reducible.—*Medicin. Zeitschrift*, 1839, No. 38.

FATAL INFLUENCE OF THE EXHALATION FROM CHERRY-LAUREL UPON LEECHES.

About 700 healthy leeches, collected one bright summer's noon-day, were placed in two large glasses half filled with water, and covered with linen, and set towards evening between a cherry-laurel and a common laurel tree, so that their leaves and branches closely surrounded and covered the tops of the glasses. Next morning all the leeches were dead, and without doubt in consequence of the exhalation from the cherry-laurel tree.—*Archiv der Pharmacie*, May 1839.

NEW VACCINE MATTER.

The Royal Jennerian Institution of London employs now the same lymph which has been in use since the year 1806, when the institution was founded. According to this authority, lymph recently obtained from the cow does not generate a vesicle in any way superior to that produced by the old lymph (*Report of the Royal Jennerian Institution*, 1836). The same result was obtained in Italy in 1829, when the alarm of epidemic small-pox induced the Piedmontese physicians to try a variety of new stocks of lymph. We are informed by Dr. Griva (*Epidemia Variolosa del Torino*, 1829), chief of the Vaccine Establishment at Turin, "that no perceptible difference was to be traced between the aspect and progress of the old and the new, the primitive, and the long humanised virus." In Germany, the plan of recurrence to the cow has been largely tried of late years. In Wirtemberg alone, between 1831 and 1836, forty varieties of primitive lymph were successfully employed. The notion of superior efficacy attaching to the new lymph was, however, not generally entertained (*Heim, Kritische Darstellung der Pockenseuchen*). On the other hand, we are bound to acknowledge that the Small-Pox Hospital of London changed their old stock of lymph for more recent matter in 1837, and that a marked improvement was perceived in the resulting vesicles. The local inflammation was more severe, the constitutional symptoms were more violent; the virus was more energetic, the most minute incision took effect, and the lymph given out on the ninth and tenth day was still in an active state. The National Vaccine Establishment has also, on several occasions, varied their stock of lymph with advantage. In France, a new variety of vaccine lymph, obtained from the dairies of Passy, near Paris, and called *Passy* lymph, was brought into use in 1836, and is considered by many as superior to the old stock. In 1838, Mr. Estlin, of Bristol, opened a new source of lymph from a dairy in that neighbourhood. It has been found very energetic, and is now employed in many parts of England in preference to the lymph of the National Vaccine Establishment.—*Dr. Gregory, in the Library of Practical Medicine*, vol. i. page 326.

OBSTETRICAL CLINIQUE IN ST. JOSEPH'S HOSPITAL.

By Dr. Mazarem.

In the second quarter of 1837, 56 women were delivered of 58 children, there being two cases of twins. Of the births, 27 were boys and 31 girls; three of the former and one of the latter were born dead. The forceps were employed twice, and there was one delivery by the feet. In one case the forceps were employed on account of epileptic convulsions, during which the pains at last entirely ceased. One woman died of uterine hæmorrhage, and no cause could be discovered, excepting inactivity and deficiency of contraction in the uterus after delivery. She was found dead in bed, and swimming in her blood, at two in the morning, hardly 24 hours after delivery. She had only complained of a feeling of anxiety, the previous afternoon, on awaking out of sleep. On dissection, the uterus was found full of coagulated blood, and much dilated.

Cæsarean operation eight minutes after the death of the mother.—A servant maid, aged 27, who had a disease of the chest, was admitted in a moribund state, at half-past nine on the evening of the 19th of May, and died in a quarter of an hour. The Cæsarean operation was immediately performed, and a dead fœtus of five months, of the male sex, was extracted. Disease of the lungs of long standing was found in the mother; there was much serous fluid in both cavities of the thorax, and both lungs appeared as if macerated; the left one was quite tuberculous.—*Zeitschrift für die gesammte Medicin*, from the *Jornal da Sociedade das Sciencias Medicas de Lisboa.*

COLD AFFUSION IN FEVER.

My little girl was last month seized with a very dangerous fever, which lasted twenty-one days. Having read in Dr. Currie's book of the happy effects produced in many cases by the application of cold water in fevers, I asked Dr. Pitcairn, who attended her, whether it would not be advisable to try it. He said he thought it certainly would, that it might be of great service, and could do no harm, but that the prejudice against it in London was so strong, that he never ventured to recommend it. Cold water was accordingly applied to her, and I have no doubt that it saved her life; the delirium ceased the moment after it had been applied, and all the symptoms of her fever became milder. — *Sir Samuel Romilly's Diary*, A. D. 1807.

DEATH OF DR. RUST.

To the Editor of the Medical Gazette.

SIR,

I WAS this morning informed, at the Prussian Embassy, of the death of Dr. Rust, which took place a few weeks since at his estate in Silesia, to which he lately paid a visit, and where he met with an accident which proved fatal to him. The loss, within so short a space of time, of Baron de Graefe, whose death was announced by the MEDICAL GAZETTE in June last, and of Professor Rust, who both, so much distinguished by their great talents and high scientific attainments, had been for many years the two leading men in surgery at the University of Berlin, and it might be said in Germany, will be deeply felt and much regretted, not only by their pupils. but also by the profession and public at large.

Should you deem this communication interesting to your readers, the publication of this note is at your disposal.—I am, sir,

Your obedient servant,

A. FRANZ, M.D.

19, Golden Square,
Oct. 28, 1840.

OPERATION FOR STRABISMUS.

To the Editor of the Medical Gazette.

SIR,

PERMIT me to intrude on your valuable columns for a few lines to say that my first operation for strabismus was performed on April 7th, 1840, in the presence and with the assistance of Dr. Hingeston and Mr. Wardrop, Jun., and that this operation is the next earliest *on record* to those of Professor Dieffenbach's; that the idea of the blunt hook for passing beneath the tendon of the muscle originated with Dr. Hingeston and myself at the said operation, in consequence of our experiencing great difficulties in performing it after the method of Professor Dieffenbach, as described in Dr. Forbes's British and Foreign Medical Review; that had I been aware it was the custom of the weekly medical periodicals to publish essays on the same subject from the same individual, I should have gladly availed myself of the opportunity to have laid before your readers my original communications on strabismus; and that I am your constant reader and very obedient servant,

P. BENNETT LUCAS.

22, Argyll-street, Regent-st.
October 18th, 1840.

BOOKS RECEIVED FOR REVIEW.

Mr. F. O. Ward's Outlines of Human Osteology. Part II.

Dr. Elliotson's Human Physiology.

Professor Quain's Anatomy of the Arteries of the Human Body. Delineations by J. Maclise, Esq. Part I.

Vital Statistics of Scarborough. By John Dunn, surgeon.

A Practical Treatise on the Cure of Strabismus or Squint, by Operation, &c. By P. Bennett Lucas, Esq.

The Science of Vision, or Natural Perspective. By Arthur Parsey.

Dr. Arnold on Bilious Remittent Fever.

ROYAL COLLEGE OF SURGEONS.

LIST OF GENTLEMEN ADMITTED MEMBERS.

Friday, October 16, 1840.

George Bebb Seely.—James Nance.—John Clark.—John Brach.—John Neill Waugh.—Archibald Stevenson.—Edw. Frederick Kelaart.—Edward Booth.—Henry William Boxall.—Thomas Bennett Humphreys.—Thomas Grimwood.—Charles Allison Holmes.—John Leek London. John Frederick Henry Robert Woodward.—Samuel Flood.

APOTHECARIES' HALL.

LIST OF GENTLEMEN WHO HAVE RECEIVED CERTIFICATES.

Thursday, October 15, 1840.

Christopher Johnson, Lancaster.—William Bulman, South Shields.—Josephus Atkinson, Land Hutton, Thirsk.—Joseph Blacker Bennett, Almondbridge.

Thursday, October, 22, 1840,

S. P. L. Besly, Tiverton.—W. S. Goodall, Halifax.—J. Dixon, Whitehaven.—H. E. Beck, Lambeth Terrace.—J. U. Sutcliffe, Halifax.—J. C. Little, Bedford.

METEOROLOGICAL JOURNAL.

Kept at EDMONTON, *Latitude* 51° 37 32" *N.*
Longitude 0° 3 51" *W. of Greenwich.*

Oct.	THERMOMETER		BAROMETER	
Wednesday 21	from 33	to 54	30·05	to 30·03
Thursday . 22	37	52	29·64	29·81
Friday . . 23	37	54	29·84	29·73
Saturday . 24	38	47	29·56	29·51
Sunday . . 25	35	47	29·67	29·83
Monday . . 26	30	48	29·81	29·65
Tuesday . 27	43	53	29·22	29·16

Wind S.W. on the 21st; W. on the 22d and following day; N.W. on the 24th and two following days. On the 27th S.W. in the morning, and W. in the afternoon.

On the 21st clear; the 22d, evening clear, otherwise cloudy, with rain; the 23d, morning clear, afternoon and evening cloudy, with rain; the 24th, generally cloudy, raining frequently; the 25th clear; the 26th and morning of the 27th cloudy, with frequent showers of rain; afternoon and evening of the 27th clear.

Rain fallen, ·565 of an inch.

CHARLES HENRY ADAMS.

WILSON & OGILVY, 57, Skinner Street, London

THE
LONDON MEDICAL GAZETTE,
BEING A
WEEKLY JOURNAL
OF
Medicine and the Collateral Sciences.

FRIDAY, NOVEMBER 6, 1840.

LECTURES
ON THE
PRINCIPLES AND PRACTICE OF PHYSIC,

Delivered at King's College, London,

By Dr. Watson.

Lecture VII.

Causes of disease, continued. Laws by which the operation of cold upon the bodily health is regulated. Circumstances that favour its injurious effects, and respect, first, the body itself; secondly, the manner in which the cold is applied. Modifying influence of certain states of the mind—of sleep—of habit. Means of protection. Influence of the different seasons. Impurity of the air. Hereditary tendencies to disease.

In the last lecture I commenced the consideration of some of the *causes* of disease.

We learned, by the evidence of authentic facts, that the human body is capable of bearing a very *high* degree of external temperature, for a short time, without detriment —and even without much inconvenience: and we learned—also by the testimony of facts—that the body is equally well calculated to endure, under favourable circumstances, a very *low* degree of atmospheric temperature—or, to speak in popular language, a very intense degree of *cold*.

It appears also that a high, but not extreme, atmospheric temperature, when long continued, has a stimulating effect upon the *organic* functions, and a depressing or sedative effect upon the *animal* functions of the body. Long-continued heat predisposes the body to be injuriously influenced by exposure to cold: the diseases apt to follow such exposure, under such circumstances, being derangement of the hepatic functions—violent disturbances of the stomach and bowels, with a copious discharge of vitiated and acrid bile—and acute inflammation of the liver itself? As more direct consequences of exposure to extreme heat—in other words, as examples of disorders of which extreme heat sometimes proves an *exciting* cause—I mentioned the *coup de soleil*, and the eruption called *the prickly heat*.

With respect to external cold, I pointed out to you its depressing effects upon the organic functions of the body—and, when it becomes very intense indeed, its directly sedative influence upon the animal functions also—producing a state resembling intoxication, overpowering drowsiness, and coma, especially when the cold has had an auxiliary in fatigue; and, ultimately, death itself.

I hardly need say that the effect of external cold upon the body, within certain limits of intensity and duration, is totally different from all this. When it is not intense—or when, though intense, it is applied for a short time only—or when its refrigerating and sedative properties can be sufficiently counteracted by exercise and warm clothing—cold becomes a *tonic*, stimulating, refreshing, and invigorating both mind and body. Instead of benumbing, it heightens the sensibility; instead of stupefying, it clears and sharpens the faculties, and inspires alacrity and cheerfulness of spirit; and in this way, among others, cold becomes a very important curative agent.

Here also, therefore, the contrast obtains; a high external temperature relaxes and depresses – a low one, under the circumstances just mentioned, braces and enlivens.

Nevertheless, exposure to cold is one of the most common causes of various complaints. Many or most of the internal inflammations acknowledge cold as their ordinary exciting cause. Acute rheumatism has, perhaps, no other origin. Apoplexy and palsy, and dropsy, are its frequent consequences. "With the exception," says Dr. Bateman, in his *Observations on the Diseases of London*, "with the exception of a small number of diseases occasioned by unwholesome occupations, and by the contagions, the great mass of human malady in this metropolis is referable to the climate or state of the seasons, and to intemperance: but, of these two causes, the vicissitudes of the weather, especially its cold, are by far the most prolific sources of mischief."

It must, therefore, to every one who is engaged, or likely to be engaged, in the practice of physic, be a matter of first-rate importance, and of great interest, to ascertain the circumstances under which the application of cold is the most prejudicial, or has the greatest influence upon the body—as well as the means by which the bad effects of exposure to cold may often, in a great degree, be prevented.

There are some short but valuable hints upon this subject in Cullen's First Lines. The late Dr. Currie, of Liverpool, was, however, the first person who distinctly pointed out the laws that regulate the operation of cold as a cause of health and disease.

Of the circumstances which favour the morbific effects of cold, some relate to the condition of the body itself, some to the particular manner in which the cold is applied. The former are predisposing circumstances; the latter accessary. We will glance at these in succession.

Predisposing circumstances. — It has long been a popular, as well as a professional axiom, that *sudden vicissitudes* of temperature are dangerous: that a *previous hot state of the body* augments the hurtful effect of the application of cold, either externally or internally. But the proposition thus broadly stated is not universally true. It is well known that the inhabitants of Russia are in the habit, while reeking from their vapour baths, of rolling immediately in the snow, or plunging into cold water, without suffering from the change. Sir Charles Blagden, describing some of the experiments which I mentioned in the last lecture, says, "During the whole day we passed out of the heated room (of which the temperature ranged from 240° to 260°) after every experiment, immediately into the cold air without any precaution. After exposing our naked bodies to the heat, and sweating most violently, we instantly went into a cold room, and staid there even some minutes before we began to dress, yet no one received the least injury." And Capt. Scoresby, speaking of the arctic regions, tells us that he has often gone from the breakfast-room of the vessel, where the temperature was 50° or 60°, to the mast head, where it was only 10°, without any additional clothing, except a cap—"yet," says he, "I never received any injury, and seldom much inconvenience from the uncommon transition."

It is plain, therefore, that the proposition which assigns danger to sudden vicissitudes of temperature requires limitation. The effects of a sudden descent from one point to another in the scale of atmospheric temperature varies according to the state of the body at the time. Without going into any physiological discussion respecting the source of animal heat, I may just remind you of the faculty of evolving heat possessed by man and the warm-blooded animals; by which faculty very nearly the same degree of inward temperature is steadily maintained under very different degrees of outward temperature. If the external temperature be lower than that of the body, the caloric thereby carried off is speedily replaced, in a healthy adult, by this evolution of heat from within, aided by clothing, or exercise. When the external temperature approaches the standard heat of the body, sweat soon breaks forth, and the superfluous heat is removed by evaporation: for so constant is the internal evolution of caloric, that an atmosphere which does not as constantly abstract any of it is excessively incommoding: an external temperature of 98°, which is about the average heat of the blood in man, is, as you know, extremely oppressive. The terms hot, warm, cool, cold, as applied to the surrounding air, are regulated by the sensations that it produces upon the average of persons. If the heat be carried off as fast as it is generated, and no faster, no particular sensation is felt, and the bodily powers are neither stimulated nor exhausted. This equilibrium is maintained, (supposing that no extraordinary exertions are made) when the thermometer stands at 62°, or thereabouts. We call that point in the scale *temperate*. All degrees above that point, up to 70, are reckoned *warm*; all above 70, *hot*. Descending in the scale, we speak of the temperature denoted by any degree between the 60th and the 50th as being *cool*; and every lower degree of temperature is *cold*. I am speaking of the average of healthy men: for remarkable diversities occur among individuals in respect to the names which they assign, under the guidance of their sensations, to particular degrees of the thermometric scale; their sensations differing according to the power which their constitutions respectively possess of evolving heat. Now if this power of evolving heat, thus inherent in the system, be entire, and active, and persistent—if it have not been weakened by any of those circumstances which are known to have the effect of weakening it—no peril need attend even violent alternations of external temperature. Unusual heat of the body at the time when the cold is applied, so far from implying danger, is really the condition of safety, provided the heat is steady and permanent. You may read, in Dr. Currie's book, numerous instances of the cold affusion being employed in the hot stage of fever, and particularly in cases of scarlet fever, not only with impunity, but with great benefit to the patient. The same holds true of the application of cold when the body has been heated by exercise—and, indeed, whatever may have been the cause of the increased heat—provided always that that cause remains steadily in action, that there is no local disease, and that the body is not fatigued and rapidly losing its heat. But if a person be already exhausted and weakened by exercise—if he be sweating and rapidly parting with his heat—and especially if the exercise is remitted, and he remains at rest immediately after the application of the cold—then it becomes highly perilous, and likely to produce internal mischief.

The more correct statement, therefore, respecting the application of cold is, that it is dangerous—not when the body is *hot*—but when the body is *cooling after having been heated*.

This principle applies alike, I say, whether the cold be applied externally or internally; to the surface of the body, or to the mucous membrane of the stomach. Very many instances are recorded of death taking place immediately after a copious draught of cold water. I believe it will be found that in all these cases, the body, after having been much heated and enfeebled by severe exertion, was losing its preternatural heat from profuse perspiration, and, in general, from the cessation also of the exertion by which this heat was accumulated. Celsus was aware of the danger: "ex labore sudanti frigida potio perniciosissima est." The fatal influence of cold water thus applied was experienced, on a large scale, among the troops of Alexander the Great, upon their reaching the banks of the River Oxus, thirsty, fatigued, and perspiring from their toilsome march of forty-six miles across the scorching sands of the desert. According to Quintus Curtius, Alexander lost more of his soldiers on that occasion than in any one of his battles. "Sed qui intemperantius hauserant intercluso spiritu extincti sunt; multoque major horum numerus fuit, quam ullo amiserat prœlio." Dr. Currie relates a striking example, which fell under his own observation, of sudden death thus produced. A young man had been playing a severe match at fives, and had violently heated himself. When it was over he sat down on the ground panting for breath, and covered with profuse perspiration. In this state he called to a servant to bring him a pitcher of cold water just drawn from a neighbouring pump. After holding it in his hand a little while, till he recovered his breath, he put it to his head, and drank a large quantity at once. He laid his head on his shoulder, and bent forwards; his countenance became pale, his breath laborious, and in a few minutes he expired.

I may take the opportunity of telling you that the remedies to be administered, when life is in jeopardy from this cause, are warmth to the epigastrium; and laudanum, in free doses.

If death does not speedily follow the external or internal application of cold to the body under the untoward circumstances I have described, inflammation of some internal part is very apt to arise.

By attending to the principles now laid down, you will be enabled to furnish those whom it may be your business to advise with many useful suggestions, and to caution them against some common mistakes: mistakes which have had their origin in the unqualified credit that has been given to the maxim, that sudden vicissitudes of external temperature, and exposure to cold while the body is hot, are dangerous; whereas, these things are dangerous only under certain circumstances. Thus, you may tell the sportsman that wet feet, or a wet skin, need cause him no apprehension, so that he continues in active exercise; and changes his clothes, and avoids all farther application of cold, as soon as the exercise is over. You may admonish the bather, that after walking in a hot day to the river's side, he had better *not* wait, to cool himself a little, before he plunges into the stream; and in like manner you may venture to advise the young lady who has heated herself with dancing, not to linger in the entrance hall till the glow has somewhat subsided, but to make the best of her way to her carriage, and thence to her bed; and you may tell your male friends, who happen to be similarly circumstanced, that the best thing they can do is to walk briskly home in their great coats. The main points to be remembered are, that the "heat which is preternaturally accumulated by exercise is held with little tenacity, is dissipated by profuse perspiration, and is speedily lost when to this perspiration is added a state of rest after fatigue;" and that, in these circumstances, the application of cold is most apt to be prejudicial.

Among the circumstances which favour the morbific effects of cold, and relate to the condition of the body itself, is to be included—for reasons that will now be obvious to you—whatever has the effect of weakening the system, and so diminishing its capability of evolving heat. The most common of these debilitating circumstances are enumerated by Cullen—"fasting, evacuations, fatigue, a last night's debauch, excess in venery, long watching, much study, rest immediately after great exercise, sleep, and preceding disease." All these, you will observe, tend to lessen the vigour of the circulation, and to depress the power of generating heat. Consistent with the same principle is the fact ascertained by M. Edwards, that the faculty of evolving heat is very feeble in old persons, and in the newly born; it being in these classes that we find the greatest number of victims to the power of cold.

The bad effects of cold upon the system depend partly upon the intensity of the sensation it produces—but still more upon the duration of that sensation. We are seldom the worse for a momentary sensation of cold, however lively it may have been; whereas even slight feelings of chilliness, if long protracted, are apt to terminate in some form of disease.

Accessary circumstances.—By the help of this principle we may explain most of the circumstances which, relating to the manner in which the cold is applied, have been found by experience to aggravate its hurtful influence.

Cold is more likely, *cæteris paribus*, to prove injurious when it is applied by a wind, or current of air. The sensation of cold is sustained by the continual accession of fresh particles of frigid air to the surface of the body. Some striking facts in illustration of the refrigerating and depressing effects of a stream of cold air were mentioned in the last lecture.

Again, the injurious operation of cold is augmented, when it is accompanied with moisture. Wetness is notoriously the worst way in which cold can be applied. The contact of wet or damp clothes with the skin both increases and prolongs the sensation of cold. For the same reason a cold foggy atmosphere is more prejudicial than a clear, and therefore drier one, of the same temperature. The heat of the body is abstracted more rapidly than it is generated from within, and if it be not replaced by exercise, or cordials, the balance of the circulation is deranged, and internal mischief often follows.

Counteracting circumstances.—The same principles serve to illustrate the effect of certain other circumstances, adverted to by Cullen, as being counteractive of the morbific tendency of exposure to cold: "passions engaging a close attention to one object"—"that state of the body in which sensibility is greatly diminished, as in maniacs,"—and "the power of habit." These circumstances are worthy of a moment's notice.

Abstraction of mind.—Impressions that are unheeded are unfelt and inoperative. As it is scarcely possible, when the attention is engrossed by bodily pain, to carry on any connected train of thought—so on the other hand the senses become impassive in proportion as the mind is fixed upon some absorbing subject of reflection, or enchained by some powerful emotion: impressions made upon the organs of sense are no longer taken notice of; the corresponding sensations, if they are excited at all, are not remembered, and the effect of such impressions is as if they had never been; they are not followed by the usual consequences. Persons gasping for breath in spasmodic asthma will remain for hours at an open window, with scarcely any clothing, during severe frost, and without suffering from the cold; their attention is so anxiously and exclusively bestowed upon the distress in their breathing, that the coldness of the air is unnoticed and unperceived, and has no sensible effect. "For where the greater malady is fixed, the lesser is scarce felt." The morbific effect of cold upon the system is certainly modified by the degree of attention that is paid to the sensation it excites.

Insanity.—Upon the very same principle may be explained the impunity with which some maniacs undergo exposure to cold—even when suffering no fever which might regenerate the lost heat. "I have seen," says Dr. Currie, "a young woman, once of the greatest delicacy of frame, struck with madness, lie all night on a cold floor, with hardly the covering that decency requires, when the water was frozen on the table by her, and the milk that she was to feed on was a mass of ice."

Sleep is enumerated by Dr. Cullen among those conditions of the body which diminish its power of resisting cold. And certainly cold is very readily caught (as the phrase is), when its causes are present, during sleep. But while we sleep sensation is in a great measure suspended. This would seem, therefore, to furnish a contradiction to the principle that the effect of cold upon the bodily health depends upon the strength and the duration of the sensation excited by it. Dr. Alison—I speak from recollection of his observations heard many years ago—disposes of this difficulty by affirming that the sleeper who thus suffers does really feel, and is conscious of, the sensation of cold, and that it mingles with and probably suggests his dreams. Lord Brougham, in his *Discourse of Natural Theology*, gives a very lively picture of dreams so excited—drawn, as I should guess, from his own experience. Probably something of the same kind has occurred to most of us. "Every one knows (he says) the effect of a bottle of hot water, applied during sleep, to the soles of the feet: you instantly dream of walking over hot mould, or ashes, or a stream of lava, or having your feet burnt by coming too near the fire. But the effect of falling asleep in a stream of cold air, as in an open carriage, varies this experiment in a very interesting, and indeed instructive manner: you will, instantly that the wind begins to blow, dream of being upon some exposed point, and anxious for shelter, but unable to reach it; then you are on the deck of a ship, suffering from the gale—you run behind a sail for shelter, and the wind changes, so that it still blows upon you; you are driven to the cabin, but the ladder is removed, or the door locked. Presently you are on shore in a house with all the windows open, and endeavour to shut them in vain;—or, seeing a smith's forge, you are attracted by the fire, and suddenly a hundred bellows play upon it, and extinguish it in an instant, but fill the whole smithy with their blast, till you are as cold as on the road."

Certain it is, that though while sleeping we are not sensible of, or (what perhaps is the same thing) do not remember, ordinary impressions, we are nevertheless conscious of unusual sensations; so that the facility with which we take cold during sleep is no real exception to the general law that the sensation produced by cold is concerned in its injurious effects.

Habit.—The last of the accessary circumstances mentioned by Cullen is "the power of habit." No one can doubt the effect of custom in enabling the body to resist the operation of cold, who has had opportunities of observing how differently an inclement temperature is borne by persons whose employments oblige them to live much under the open sky, as shepherds, sailors, stage-coachmen—and by such as pursue in-door occupations—mechanics, tailors, shopmen, and the like. Probably the sensibility of the surface is blunted by habitual exposure. We may believe too that the purer air breathed by the out-door labourer, and his more active life, confer a more vigorous state of health, and endow him with an ampler faculty of evolving animal heat. The fact is unquestionable; and we may sometimes turn our knowledge of it to good account, in gradually fortifying the system against the influence of cold that cannot be avoided. An ill-directed application of this principle has led, however, to grave errors, and cost many lives. You will now and then hear parents talk of *hardening* their children, by causing them to brave all sorts of weather, by teaching them to be indifferent about variations of temperature, to sit in winter-time without a fire in the room, and to despise great coats, flannel, and other additions to their usual dress. Fearing to render them effeminate by over care and cockering, they run into the opposite and more dangerous extreme.

This process is often attempted with children originally delicate, and to such it is doubly hazardous. During the early periods of life the inherent protective power of evolving heat is comparatively feeble; and in this climate it requires to be carefully cherished.

The experiment of hardening should never be tried on any child or person that is ailing or unsound; that shows any sign of present disease; or any marked disposition to future, and especially to scrofulous, disease. Whenever it is tried it must be conducted in conformity with the principles already laid down. The subject of the experiment must be sufficiently clothed, and he must not fail to use such exercise during the exposure as may be requisite to excite and sustain the adequate generation of animal heat. An *abiding* sense even of chilliness must never be aimed at nor permitted.

The most direct and certain mode of fortifying the body against injury from accidental exposure to cold, is afforded by the use of the cold bath, and especially of the shower bath. When this is regularly taken in the morning, the surface of the body becomes enured to a degree of cold greater than it is likely to encounter during the remainder of the day. It is fortunate that we have an easy criterion of the propriety of continuing this expedient. When the sense of cold does not remain long, and is followed by a glow of warmth, the cold shower bath is sure to do good. If, however, after the bath, the person suffers headache, and continues long chilly, languid, and uncomfortable, it should at once be given up, as useless, and even hazardous.

By observing these simple rules, a healthy child may be made hardy also, without the risk, which their neglect would impose, of damage to his bodily fabric, and of abbreviating, by what was meant to prolong, his mortal span.

Influence of the seasons.—Closely connected with the effects of temperature upon the health is the influence of the different seasons of the year. A few remarks upon that influence, as it is witnessed in our own climate and country, may properly conclude our present subject.

It is open to the commonest observation that the general health of the community fluctuates with the changing seasons. Catarrhs, and coughs, and pectoral complaints of all kinds, are most apt to commence, or to grow worse, in the winter and spring months, while bowel complaints are more numerous and distressing in the summer and autumn. The mucous membranes of the air-passages sympathize with the skin under the agency of external cold—those of the stomach and intestines under that of continued atmospheric heat.

The thoracic disorders are more serious

and fatal than the abdominal. Various other maladies are likewise aggravated by cold, or by vicissitudes of temperature. Hence the mortality of the winter is always larger than that of the summer: unless indeed, this rule happens to be disturbed by the intervention of some widely-spread epidemic. I am not sure that the superior salubrity of the hotter over the colder portion of the year is generally acknowledged, even in this age of enlightenment.

It is the cold that, more than any other element of the weather, occasions the difference.

There are two small publications by the present Dr. Heberden, to which I would direct your attention, as being singularly instructive upon these points. One you will find in the eighty-sixth volume of the Philosophical Transactions: *Of the influence of cold upon the health of the inhabitants of London.* The other is a separate pamphlet: *Observations on the increase and decrease of different diseases.*

From a number of tables, framed chiefly upon the weekly bills of mortality, Dr. Heberden draws (in the last-named paper) the conclusion that the whole number of deaths is greatest in January, February, and March, and least in June, July, and August. This is contrary to the notions of the ancients —and perhaps of many of the moderns also. Celsus says, "Igitur saluberrimum ver est; proxime deinde ab hoc, hiems; periculosior æstas; autumnus longe periculosissimus."

In his paper in the Philosophical Transactions, Dr. Heberden compares the number of deaths that took place in London in January 1795, which was an unusually severe month, with the number that occurred in January 1796, which was an uncommonly mild month. Of those two successive winters one was the coldest, and the other the warmest, of which any regular account had been kept in this country. In the month of January 1795, the thermometer, upon an average, stood at 23° in the morning, and at 29°.4 in the afternoon; always, you will observe, below the freezing point. In the same month in 1796, it stood at 43°.5 in the morning, and at 50° in the afternoon; always much above the freezing point. The average difference in the two months was more than 20°.

In the five weeks beginning with January 1st, 1795, there were 2823 deaths: in the five weeks beginning with January 1st, 1796, there were only 1471. The difference, 1352, is enormous. The mortality in the former year was nearly double of that in the latter.

One object which Dr. Heberden had in view in making this comparison was to disabuse his countrymen of the notion that cold frosty weather is more favourable to health than mild weather in winter; a notion which has been embodied in the proverb, that "a green Christmas makes a fat churchyard."

It is very instructive to remark in what classes of persons the injurious effects of the severe weather of winter is most felt. The increased mortality was found to be chiefly among the very young, and the very old: in other words, among those in whom the recuperative power of generating heat is the feeblest.

In January 1795 there were in London 717 deaths of persons above sixty years old, while in January 1796 there were only 153 such deaths; or scarcely more than one-fifth of the former number.

I have often been struck by the unusual length of the newspaper obituaries during periods of hard frost; and by observing how many of the individuals whose deaths they record were far advanced in years. Dr. Heberden remarks that among persons older than sixty, the tide of mortality, as measured by the weekly bills, follows regularly the degree of coldness of the weather—so that any one accustomed to examine these lists may form a tolerably accurate judgment of the severity of any of our winter months, by noting the ratio of the mortality in persons above sixty.

The deaths from asthma (under which vague term all kinds of pectoral disorder attended with shortness of breath appear to have been included) were 249 in January 1795—only 29 in January 1796. In the former of these months there were 825 deaths attributed to consumption—in the latter 342.

All this accords with what I mentioned before of the effect of cold weather in producing or exasperating diseases of the respiratory organs.

One of the conclusions deduced by Dr. Heberden from his examination of the bills of mortality is, that "the number of deaths by palsies and apoplexies is in this country always greatest in winter." There are intelligible reasons for this. When the surface is chilled, and the blood driven out of the superficial vessels by the cold, it must accumulate in internal parts, and so press with increased force towards the head. And there is another reason for the frequency of these affections in the winter season: it is, as we have seen, the season of pectoral complaints, and of embarrassed respiration. Dyspnœa, and fits of coughing, greatly impede the return of the blood from the head through the veins: and cerebral congestion tends to the production of cerebral hæmorrhage, especially when the arteries of the brain are diseased; and they often are so. Accordingly we find that in January 1795 there were fifty-two deaths from apoplexy and palsy—while in January 1796 the number was only thirty-one.

You may trace the influence of the seasons—not only in the prevalence of particular diseases in certain portions of the year—but also in the character of other disorders that are liable to occur in all periods of the year alike;—in the character, for example, of fevers. In the majority of cases of continued fever you will find that the pectoral symptoms are most troublesome in the spring, and the abdominal symptoms in the autumn. It is said also, but I do not know that this is so generally true, that affections of the head, in continued fever, are more frequent and severe in the winter, than at other periods of the year.

Impurity of the air.—*Mere impurity* of the air—by which I mean impurity that does not result from the admixture of any *specific* poison, such as the marsh poison, and the various contagions—is a powerful predisposing cause of disease. The prejudicial effect of impure air is seen, on a large scale, by comparing the inhabitants of great towns, in respect to health and longevity, with those who live in the country. In a valuable letter by Mr. Farr, appended to the *First Annual Report of the Registrar General*, a comparison is made of the mortality of about seven millions of persons, one half of whom dwell in towns, the other half in counties. "The concentration of the population in cities doubles the deaths from epidemic diseases, and disorders of the nervous system." In cities, as compared with counties, the deaths from consumption are increased 30 per cent, those from childbirth 71 per cent, those from typhus 221 per cent.

These differences we can explain only by attributing them to the weakening influence of impure air, and the want of sufficient exercise: for, as Dr. Alison has remarked, "it is hardly possible to observe separately the effect on the animal economy of deficiency of exercise, and deficiency of fresh air, these two causes being very generally applied together. But it is perfectly ascertained on an extensive scale, in regard to the inhabitants of large and crowded cities as compared with the rural population of the same climate, that their mortality is very much greater, especially in early life—and the probability of life very much less." There is one circumstance which shows that impure air is the more noxious agent of the two, namely, the very great mortality, in towns, of children under two years of age, even although they get as much exercise as their time of life would allow of any where.

The noxious and depressing influence of vitiated air is made strikingly manifest by the effect of a removal to a purer atmosphere. We are continually obliged to recommend "change of air" to our patients. We advise them to go out of London, that their recovery from acute disorders may be accelerated, and that they may regain the degree of general strength which is necessary to the cure of many chronic complaints; of all those especially that require the use of *tonic* medicines, among which class of remedies no one is so effectual, in constitutions that have been weakened by a town life, as removal to the clear and pure air of the country.

It is necessary, however, to remember that although impure air has most unquestionably a very hurtful effect upon the general health, there is no specific disease which can be distinctly traced to it as an *exciting* cause. It is as a predisposing influence that the impurity operates. For instance, it never *generates* (as I believe) continued fever, yet it will most certainly aggravate the symptoms, and favour the propagation, and augment the mortality, of that, and of other diseases, in a great degree. If there be any diseased condition that is strictly the product of impure air, it is scrofula. Scrofula (as I shall presently shew you) depends in part upon hereditary constitution; it partly arises also from exposure to cold and wet; but there is much reason for believing that impure air is a very powerful agent in calling scrofula into action, and in aggravating the strumous diathesis.

I have entered the more fully into the consideration of certain states of the atmosphere, its extremes and its variations of temperature, and its impurity, as causes of disease, because there is no part of the course in which I could more conveniently introduce them. Most of the other causes of disease, enumerated in my last lecture, will be discussed in connexion with the disorders to which they give birth: malaria, for example, when I speak of ague; contagions, when we come to the exanthemata and to continued fever; improper or insufficient diet, and intemperance generally, with indigestion, and the disorders of the alimentary canal; and so on. There is, however, one remarkable predisposing cause of disease, a few observations upon which may serve to fill up the little that remains of the present hour. I mean, that disposition to certain diseases which is apt to descend from parents to children: *hereditary tendencies* to disease.

Hereditary predisposition.—We must distinguish between *susceptibility* of disease, and a *tendency* to disease. In one sense all persons are born with a predisposition to most forms of disorder. No one is protected by nature against inflammation, when the causes of inflammation come into play. Poisons of various kinds, and specific contagions, which indeed are poisons, operate with tolerable uniformity upon *all men* alike.

But there are certain complaints which

we may separate in this respect from the others: which complaints some persons have a tendency to, and some have not. The tendency is sometimes strong and evident; sometimes feeble and faintly marked; sometimes it displays itself in the midst of circumstances the most favourable to health; sometimes it requires for its development conditions the most adverse and trying. To mention some of these diseases: scrofula, which I shall soon describe more particularly, gout, mania, and (I believe I may add) spasmodic asthma.

Not only is a disposition to these complaints strikingly pronounced in some persons, but other persons appear wholly free from such a tendency, nay even devoid of the susceptibility of them. Gout, in those *capable* of it, may be acquired by habits, as it may be repressed and prevented by the opposite habits. The habits that, in certain persons, bring it on, are the intemperate use of the luxuries of the table, and an indolent or sedentary manner of life: but there are many people in whom no amount of rich living or idleness will generate gout. So there are some in whom no exposure to impure air, cold and wet, and no privations—in other words, no appliance of the circumstances calculated to bring the strumous diathesis into play, will ever produce any form of scrofula—will ever render them consumptive, for instance; consumption being one of the most common and fatal shapes of scrofulous disease. There are many who never become afflicted with asthma, although surrounded by the most powerful exciting causes of that complaint.

Now with respect to these diseases, and perhaps a few others, it is matter of fact that they occur much more frequently in persons, some one or more of whose ancestors have suffered from them, than in other persons: the tendency is transmitted, is hereditary.

That the circumstances of the parents *do* influence the physical character of the children, no one can doubt: it is matter of daily observation; and one of the best possible illustrations of the fact is to be found in what are called family-likenesses. We see children resembling their father or their mother; or both parents at once, as mulattoes.

It has been suggested that the similarity in features and expression, and even in moral character, which cannot be denied to exist, may be ascribed to education and imitation. But allowing something to that cause, it cannot be all. It was, I remember, a common remark when I was at Cambridge, that the followers and admirers of a very good man, the late Mr. Simeon, appeared to come at last to resemble him. So man and wife are sometimes fancied to grow like each other. That is, the same prevailing cast of thought and feeling—the idem sentire et idem velle—may give such an habitual expression and character to the countenance, as to superficial observers may constitute a likeness. But there are family-likenesses which will not admit of such an explanation as this: similarities in the shape or size, or disposition of peculiar features. Every one has heard of, or may remark in portraits, the hereditary thick lip of the Imperial House of Austria. Many persons now living have had the opportunity of tracing the lineaments of our own Royal Family through at least three generations. The sisters of one of our English Dukes are remarkably handsome young women, and bear, to this day, a striking resemblance to the portraits of their beautiful ancestress, the celebrated Nell Gwyn. And independently of the general cast of features, we trace these family likenesses in minute or unequivocal particulars—the colour of the hair and eyes, the shape of the limbs, the stature of the body, and so on: nay, in more decided peculiarities than these, in points of unusual formation. You have heard, probably, of the American calculating boy, Zerah Colburn. A great number of individuals of his family, descended from a common ancestor, had six fingers and six toes instead of five. The peculiarity was transmitted through four successive generations; and probably, could his pedigree have been farther traced, through many more. I am myself acquainted with a gentleman who had the misfortune some years ago to have a bastard child laid to his charge. At first he had some misgivings on the subject, and suspected that he might have no real title to the credit (or I should rather say to the discredit) of the imputed paternity; but all his scruples were satisfied when he found that the child had six fingers on each hand, for he had himself possessed two small supernumerary fingers, which had been amputated when he was an infant. Haller gives an account of a web-footed family, descended from a mother in whom that configuration existed.

Now there is one very curious circumstance observable in regard to these family-likenesses, namely, that they may fail to appear in the child, and yet appear in the grandchild: may skip over a generation or two; may, after lying dormant, break out, as it were, in some collateral branch of the family tree.

This not only proves that certain physical peculiarities may be transmitted, but it discloses this curious property, that peculiarities *not possessed* by the parent may nevertheless be *transmitted* by him. And this evidently opens a wide field for the operation of hereditary tendencies. A person is not to consider himself as necessarily free from a disposition to consumption or gout, because his parents have never shewn any symptoms of those disorders.

When one parent only bears the transmissible tendency, the disease appears to be most apt to break out in the children who most resemble that parent in their physical conformation and appearance: yet this is not a universal rule. I am acquainted with a gentleman who has lost several brothers or sisters by phthisis. The fatal disposition is known to exist on his mother's side, while his father's pedigree is believed to be quite free from it. All the children that have hitherto become consumptive have resembled the mother in bodily configuration and features, except this gentleman, who is like his father's family, but who, nevertheless, labours under unequivocal consumption.

It becomes a very interesting, and a very important question, whether *acquired* peculiarities can be transmitted. I have been told, by a gentleman attending the class, that he knew a man, who having been accidentally deprived of sight, afterwards propagated blind children. I believe, however, such an event is uncommon. Dr. Prichard is of opinion that all original or connate bodily peculiarities tend to become hereditary, while changes in the organic structure of the individual from external causes during life, end with him, and have no obvious influence on his progeny. Although this general law is probably true, I doubt whether it be yet sufficiently established by a reference to actual facts.

I need scarcely say a word respecting the importance to medical men, and indeed to all men, of a knowledge of these hereditary dispositions. Such knowledge ought to regulate, in some degree, the choice of persons wishing to marry. Where both parents have a decided tendency to any complaint, there will be a double probability of a diseased progeny. Lawful intermarriages between members of the same family are often highly objectionable on the same score. Any inherent defect or morbid propensity is aggravated by what cattle-dealers call "breeding in and in."

Again, if it be known that in any family an hereditary proclivity exists; to gout and gravel, for instance, or to consumption; this knowledge ought to warn every individual of that family sedulously to avoid the causes that foster and develop these diseases; and medical men possessed of the requisite information may give most valuable advice and instruction on these points*.

REPORT OF
PAROCHIAL LYING-IN CASES
(FOR EIGHTEEN MONTHS)
DURING 1839, AND TO THE END OF JUNE, 1840.

By James Reid, M.D.

Medical Superintendent of the Parochial Infirmary of St. Giles and St. George, Bloomsbury.

(For the Medical Gazette.)

580 cases—producing 589 children:—

305 male, of which 34 were still-born*.
284 female . . 31 . . ditto.

*The majority of these were of premature birth.

Age of the mothers.

Under	20	24
Between	20 & 25	158
"	25 & 30	169
"	30 & 35	155
"	35 & 40	50
"	40 & 45	21
"	45 & 50	3
		580

Unnatural presentations, complications, or accidents occurring after, or during, parturition.

Of the above 580 cases,

The breech presented in	12
Feet	6
Face	2
Arm (these all occurred in twin cases)	3
Hand and foot	1
Funis with head	5
Funis with feet	1
Twins occurred in	9
Convulsions	2
Retained placenta (2 accompanied by hemorrhage)	10
Uterine phlebitis	1
Flooding before delivery	8
Flooding after delivery	6
Lingering labour (those beyond 24 hours)	50
Premature births	41
Puerperal peritonitis	11

The *forceps* were employed in 5 cases; *cephalotomy* in 3, and *version* in 2.

Mortality in the 580 cases, 5.

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* During the passage of this lecture through the press, the *Second Annual Report of the Registrar General* has been circulated, by the obliging attention of Mr. Lister, among the members of the profession. It contains much that illustrates and confirms several of the positions here advanced. This immense yearly addition to the science of vital statistics is of the highest value. It cannot fail to throw light upon the sources, and to point towards the prevention, of many very fatal disorders. To ascertain the causes of any disease, and to display them before the public mind, are large steps towards their removal, so far as that may be practicable. The report itself, and Mr. Farr's able analysis of the registered facts, are replete with interesting and useful information.—T. W.

One female, who died the day after delivery, I have not included in the above number, as she had been discharged from more than one hospital as incurable, owing to disease of the heart. The excitement of parturition was sufficient, however, to hasten her death. On a post-mortem examination the heart was found to have enlarged to nearly double its size in health, and the lungs were diseased.

By a curious coincidence, another case of somewhat similar character was admitted the day after. I was requested to see her about twelve hours after the termination of her labour, as she was expected to die every moment. I found her apparently moribund, with a quick small pulse, cold clammy skin, her face and lips of a purple colour, and hardly able to articulate. The action of the heart was very irregular, and her respiration laborious. Without much expectation, I must confess, of its doing good, I ordered a small bleeding, to the extent of 8 ounces: it was, however, attended by very beneficial effects, and was again repeated during the night with advantage, as a violent cough had supervened. By the further application of blisters and leeching, and the internal use of mercury, antimony, and opium, she recovered sufficiently to allow of her discharge in three weeks' time.

Memoranda as to the preceding cases :—

In one case of arm presentation, both the hands were found in the vagina.—The mother, in *six* labours, had had *six* unnatural presentations.

In a case where the breech presented, the woman, in *eleven* labours, had had *ten* unnatural presentations.

A woman in three pregnancies had twice borne twins.

A woman had given birth to eleven boys in as many labours, and at length had a girl in her twelfth.

A case occurred of hydatid of the placenta. It was at first mistaken for a second bag of membranes.

The great majority of premature births took place in the seventh month.

One infant, born at the sixth month, lived twenty-six hours.

Another, at the same period, lived twenty-four hours.

In one case the woman, at full period, was delivered suddenly whilst standing in the street. Both child and placenta fell to the ground; the former, though bruised, survived, and no injury occurred to the mother.

The largest child of the above numbers weighed 11 lbs. avoirdupois: it was still-born. The next in weight was under 10 lbs.

In adding the foregoing 580 cases to 600—the reports of which appeared in the Medical Gazette of 1837 & 1838—and to 2,070 cases which I published, in 1836, in my Manual of Midwifery, the following will be the average result:—

Total number of cases, 3,250.

The breech & lower extremities presented in	79,	or 1 in about 41,	or 24·3 per 1000
Upper extremities	18,	180,	or 5·5 ,,
Face	15,	217,	or 4·6 ,,
Funis	16,	203,	or 4·9 ,,
Convulsions occurred in	8,	406,	or 2·4 ,,
Retroversio uteri	1,	3250,	or ·3 ,,
Rupture of uterus	1,	3250,	or ·3 ,,
Placenta prævia	3,	1083,	or 1· ,,
Accidental flooding before delivery of placenta	23,	141,	or 7· ,,
Ditto after	27,	120,	or 8·3 ,,
Placenta required manual extraction in	32,	101,	or 9·8 ,,
Forceps employed in	20.	162,	or 6·1 ,,
Crotchet	15,	217,	or 4·6 ,,
Version	20,	162,	or 6·1 ,,

Cephalotomy.

Jan. 22, 1839.—Maria Harris, æt. 27 (first pregnancy), came into the house on the 20th. Labour commenced on the morning of the 21st, and the liq. amnii escaped soon after. At noon the midwife found the head low down, and the os uteri fully dilated. Pains continued through the night, but without forwarding the descent of the child.

No movement of it has been felt by the mother since yesterday. I was sent for on the morning of the 22d, and was informed that the head had made no advance for the last twelve hours. I found that the rami of the pubes were approximated, and that there was likewise slight deformity at the brim. Vertex presenting. I tried to apply the forceps, but could not succeed with the second blade; and, from the fetid discharge, combined with the cessation of movement in the infant since the day before, there was little doubt as to its death, and as the head had already rested with strong pressure on one part of the vagina, I thought it expedient to use the perforator. The head did not collapse well, and there was great difficulty afterwards in effecting the passage of the shoulders, owing to the narrowness of the passage. This was evidenced, likewise, by strong marks of compression, which were observable on the thorax after birth. The patient did well.

Forceps case.

March 26.—Lydia Ives, æt. 40. First child. A coloured discharge had escaped for six days. On the third the liq. amnii escaped, but the os uteri was not at all dilated. Irregular pains. On the morning of the 25th, true pains commenced, but they did not become strong till 10 P.M. The presentation was natural, but a slight deformity at the brim of the pelvis was found to exist. On the 26th, at 2 A.M., there was no advance, and as the patient was becoming debilitated, I introduced the forceps, and extracted a female child, which had apparently died some hours previously.

Twins: Arm-presentation of one: Version.

August 1st.—Mary Hallen, æt. 27, residing in Griffith's-court. My attendance was requested by one of the parish midwives, to see this patient, at 5 A.M. Labour had commenced at 12 o'clock, and a male child had been born alive at 4, the vertex having presented. At 5 a second bag of membranes had ruptured, a great quantity of liq. amnii escaped, and a hand descended. On examination I found the right hand protruding from the vagina. I passed my hand up into the uterus, towards the abdomen of the mother, ascertaining that the umbilical cord had ceased to pulsate; beyond the head a knee was reached, into the flexure of which my fore-finger was hooked, and the body was turned; the protruded hand not, however, receding much. The pains now expelled the second leg, and soon afterwards the left arm. As the child's face was turned towards the pubes, I turned the head round, and by placing a finger in its mouth, and pressing it towards the breast, it soon escaped.

Forceps.

14th.—Mary Ryan, æt. 30, second child, came into the house in labour at 12 at night. By 7 in the morning the head had descended low, but no progress had been made since that time till 12 (when I was requested to see her), although the pains had been frequent, and of a strong character. Her first child, she says, was extracted dead by instruments. As there was slight deformity of the brim of the pelvis, I at once employed the forceps, and a female child was extracted alive. The head was much elongated.

Cephalotomy.

Nov. 3rd.—Catherine Maloney, æt. 21, came into the house on the morning of the 1st, in labour. Slight pains continued during the day. The os uteri was partly dilated, but the infant could not be felt through it, and the membranes were not much distended by the pains. On the 2d, the os uteri was more dilated, but the membranes were now distended by the pains, which had acquired strength, although much advance did not take place in the progress of the labour. The fœtal head could now be felt above the brim of the pelvis. At 8 P.M. the membranes ruptured, and the head slowly descended till 6 A.M. on the 3d. From this period, although the pains were regular and severe, no advance was perceptible. I was now sent for, and on my arrival found the os uteri fully dilated, and the head low down. Slight deformity of the brim existed, and combined with it the left ramus of the pubes projected inwards. After passing the catheter I endeavoured to use the forceps, but found their introduction impossible. There was an offensive discharge from the vagina, and the patient had not felt any movement of the child since the morning before. After waiting for four hours, I deemed it prudent not to hazard the risk of further long-continued pressure on the vagina, and had recourse to the perforator. The head readily collapsed, and the child was extracted by the pincers and crotchet. The patient had no bad symptoms afterwards.

Funis presentation. Cephalotomy, and perforation of Chest and Abdomen.

Dec. 28th.—Mary Reeve, æt. 28. Labour commenced on the 26th, at 6 P.M. The membranes, it appears, had ruptured during the night, and a large quantity of liq. amnii escaped, but the midwife who attended could discover no presentation. On the morning of the 27th, the midwife returned, and found the umbilical cord in the vagina, but could not feel the child. Strong pains continued through the day; the head advanced slowly till the evening, but not perceptibly after this.

28th.—I was requested to see the patient at 4 A.M., and found the cord protruding, without any pulsation in it. The head was still above the brim of the pelvis, and owing to deformity in the antero-posterior diameter of the latter had not made any advance for the last six hours. Secale cornutum had been administered, although the bladder had not been evacuated for many hours. The patient informed me that her first child had been extracted alive by the forceps, but was small, and did not long survive. The second child, which was larger, was still-born. After introducing the catheter with much difficulty, I applied the perforator, and by the use of the pincers the head steadily descended; but although strong pains continued, the body did not follow. After waiting for half an hour, I inserted the crotchet into the left side of the thorax, and brought it sufficiently down to enable me to extricate the left arm. The pains being still insufficient for the completion of the birth, I used the same means with the right side. The abdomen, which now proved an obstacle, was found to be distended with air, and I punctured it with the scissars. The infant was then extracted: it was of large size, weighing, I should think, 9 lbs. The placenta came away soon after.—This patient, owing to the long period which had been suffered to elapse during labour without relieving the bladder, was afterwards the subject of vesico-vaginal fissure from sloughing. By the use of mechanical support, which I have before used in similar cases (and which I shall at another time describe), she now suffers but very slightly from this infirmity.

Forceps.

April 26.—Eliz. Bailey, 10, Newton Street. First child. I was called to this case, by a parish midwife, at 1 A.M. The patient had been in labour for twenty-seven hours. The vertex was low down, but in consequence of a very slight deformity of the brim of the pelvis, no advance had taken place for the last six hours. As the patient felt exhausted I applied the forceps, and a female child was extracted (living) with great ease.

Forceps.

June 9th.—Elizabeth Waylin, æt. 24, 14, King Street, Drury Lane. Sent for by Mrs. Backler, as the patient had been fifteen hours in labour. The head was low down, but though the pains were very strong and frequent, it had made no advance for some hours. The rami, both of pubes and ischia, were unnaturally approximated. This woman had borne four dead children (girls) previously. By using the forceps, a male child was soon born alive.

Puerperal Convulsions.

10th.—Ellen Healy, æt. 19. First child. This patient, residing in King Street, Drury Lane, suffered much from anasarcous swelling in the lower extremities: the labia being swollen to an immense extent from the same cause, I was requested to visit her. She had been married ten months, and thinks she is near her full time. She is a large stout-built girl, of leuco-phlegmatic temperament. I recommended that she should be removed into the Infirmary, and prescribed our common diuretic powders, which contain pulv. jalap. comp. with potass. nitr. These acted freely on the bowels, and she passed a large quantity of urine on the following day.

On the 11th she complained to the nurse of intense headache; but this was not made known to us till afterwards. Cold vinegar-and-water cloths merely had been applied to the head.

12th.—At 5 A.M. she was found to be rather delirious; the face was dark, nd soon after a strong convulsive paroxysm attacked her. 25 ounces of blood were taken from her arm by Mr. Wells, the resident surgeon, who immediately saw her. At 8 A.M. I saw her. The convulsions returned about every half hour, and were of a severe character. She struggled much even in the intervals, and was quite insensible: the tongue was slightly lacerated. On examination, per vaginam, the os uteri was felt high up, and undilated: the labia much reduced in size. I immediately abstracted 32 ounces of blood again from the arm, had the hair cut off, cold water poured on the head from a height, and cold lotion applied constantly to it afterwards.

12 A.M. No return of the convulsions: patient quiet, but insensible.

6 P.M. One fit this afternoon. Venæsect. ad. ℥xiij.

The os uteri had begun to dilate at 3 P.M., and on again examining it is found to be almost fully open. The patient is now sensible, but struggles much during the pains, and is very violent, so as to require restraint. Says she has a strong inclination to void urine, but is unable to do so. Catheter introduced, but no urine followed.

The pains continued till 11 P.M., but though the head had rested on the perinæum a long time, no convulsion returned until it escaped through the vulva, when a strong paroxysm occurred. The child was still-born, and of great size, weighing nearly 10 lbs. avoirdupois.

Hirudin. xij. tempor. Vesic. nuchæ.

13th.—Insensible; pulse 100, and full; respiration uneasy; bowels freely relieved. The blister has not risen.

Rep. Vesic nuchæ. Vesic. ij. femoribus.

10 P.M. Skin hot; pulse 90, and not so full; still insensible. Blisters have risen well; pupils strongly acted on by light; cough, and difficult respiration.

Antimon. Potass. Tart. gr. 1-8th, omni bihor.

14th.—10 A.M. Has slept well; respiration free and regular; is more sensible; complains of nausea.

The antimony every four hours only.

On the 15th she had fully recovered her faculties, and went on very well till the 19th, when I found her dressed and anxious to return home, being quite well. I induced her to remain till the 21st, when she was discharged.

Twins. Second child born in an unusual position. Retained Placentæ.

June 15th.—My attendance was requested by a midwife residing in the parish, to see a woman, the mother of three children, who had been delivered of a boy on the 13th at 7 A.M., a few, but intensely strong, pains having sufficed to extrude the child alive. Another child was then discovered through the abdominal parietes, but there was no recurrence of pain, notwithstanding the administration of two or three doses of ergot, which was followed by no other effect than sickness. She remained thus totally without pain till midnight on the 14th, when pains suddenly returned, the right hand of the child coming down into the vagina. The midwife immediately sent off for me, but before my arrival the child was born, in a position which I have not before met with. The pains had been very few in number, but of the same intense nature as those which accompanied the expulsion of the first child. Under the influence of this strong expulsive action, the head was forcibly bent backwards on the spine (the face directed towards the sacrum of the mother), and *followed* the arm and shoulder. Not having met with a similar case, I questioned the midwife closely on the subject, and was by my inquiries satisfied that this was not a case of common spontaneous evolution, as the breech and feet were not expelled till after the other parts. The child, a female, of the average size of a twin, had apparently been dead for two days: its neck was more elongated than I have before observed, and its head very much compressed.

As the placentæ were not detached at the expiration of an hour after the birth of the last child, I became apprehensive that a state of atony of the uterus might supervene, accompanied by hemorrhage, and therefore passed my hand up through the pelvis, which was capacious. I found the uterus encysted at its upper part, and in this cavity were lodged both placentæ. That of the second child came away with facility, but the other was strongly adherent to the fundus uteri, and I had great difficulty in detaching it. The uterus contracted well afterwards; the patient slept for some hours, and at the end of a week was out of bed, without having suffered from a single bad symptom.

Induction of premature labour; breech presentation. Forceps.

The following case has occurred since June (the period to which my general report extends); but as it presents some points of interest, I have here subjoined a statement of it:—Two labours, of the same woman, were formerly detailed in the MEDICAL GAZETTE for January, 1835, as from serious deformity of the pelvis: the perforator had been required in both. Her second labour was a breech presentation, and a strong band (the result of the former labour) stretching across the vagina, required to be divided by the bistoury before the body of the child could descend. The perforator was again required to release the head. In her third pregnancy, premature labour was induced at the seventh month, but the child, which passed with facility, was still-born. She has, since then, had four miscarriages at the fourth month.

Aug. 15th.—Catherine Davis, æt. 37. Eighth pregnancy. Catamenia last seen on Dec. 18: quickened April 5th. On Saturday, August 15, at 12 A.M., I pursued the usual means for inducing premature labour, as this period was, as nearly as I could calculate, about the eighth month of pregnancy. The os uteri was found to be so much dilated, that two fingers could be easily passed into it, and the bag of membranes was distinctly felt. No pains occurred on the Sunday, but they commenced, feebly, on Monday at 10 A.M. They increased in force and frequency during the afternoon, and at 5 P.M. became strong. I was sent for at 8 P.M. by the midwife in attendance, as it had proved to be a breech presentation, and the body was born, but the head could not be extracted. On my arrival I found that pulsation had ceased in the umbilical cord, and, on endeavouring to release the head by pressing the chin towards the chest, and applying two fingers of the right hand on the occiput, I was unable to move it. As the infant could not be beyond the eighth month, I applied the forceps, more as a guide to their use at a future time, if again necessary, than with any hope of saving the child at present. The midwife holding the body of the infant, and drawing it gently towards the abdomen of the mother, the blades were applied without any difficulty, and the head removed.

Had the case, fortunately, been a vertex presentation, instead of the breech, the child, I think, might have been saved by the use of the forceps.

Puerperal Peritonitis.

It is a curious fact, that, with the exception of one or two isolated mild cases, puerperal fever has never made its appearance in the lying-in wards of our Infirmary, until the last winter. The first two or three cases were of a dubious character; the true nature of the disease was, perhaps, rather overlooked; and it was only after its breaking out in its intense form, that, to get rid of its fatal influence, we found ourselves obliged to employ all those precautions, which, in some larger establishments have so frequently been required. There was no prevalence of erysipelas or typhoid disease in the Infirmary, at the time, to account for its appearance (a fact which has been dwelt on as a coincidence in some hospitals). Indeed, we had a smaller number of typhus cases at the time than we had had for 18 months previously.

The following cases are to be classed, I think, in the FIRST form of the four adopted in Dr. Ferguson's excellent work on "Puerperal Fever." One or two reminded me, at the commencement, of the false peritonitis which he so well describes, and which I had opportunities of witnessing during my residence at the General Lying-in Hospital in the winter of 1824-25. In those the exhibition of Dover's powder, combined with the repeated application of hot linseed poultices to the abdomen, were sufficient to arrest the symptoms. Here, on the contrary, opiates seemed to afford but temporary relief in most of the cases.

CASE I.—Susan Radcliff, æt. 21, was delivered of her first child, on Sept. 30, in St. Giles's, having been attended by an old woman who occasionally officiated as a midwife, and who, according to the patient's account, handled her very roughly.

She was admitted into the house on the 6th of October; her infant was very sickly, refused the breast, and died a few days afterwards greatly emaciated, its umbilicus having sloughed. The mother's milk decreased in the meantime, and she complained of uneasiness about the abdomen, attended occasionally with slight pain. The lochial discharge had ceased.

On the evening of the 15th Mr. Wells was called to her, as she complained of violent pain in the abdomen, increased by the slightest pressure, and accompanied by constant retching. Tongue slightly furred in the middle; pulse quick and small; face pallid; eyes sunken; extremities cold; the bowels had been relieved in the course of the day.

Hirud. xij. abdom.; hot fomentations. Morph. Acet. gr. ss. Mist. Febrif.

16th.—Rather better; violence of pain has abated; pulse more natural (but still quick); extremities warm, bowels open; tongue furred, sickness continues. Abdomen tender, and rather tumefied.

Pulv. Hydr. c. Cret. gr. v. Pulv. Rhei, gr. v. M. ft. pulv. nocte maneque sum. Mist. Febr. Efferv. containing Ant. Tart.

17th.—Bowels much relaxed during the night; tenderness of abdomen increased; tongue furred; pulse more full; thirst and nausea continued.

Hirud. viij. abdom. fotus. catapl. lini Pil. Cal. c. Opio. ter die; Ac. Morph. gr. ss. statim.

18th.—Abdomen less painful, but more tumefied; feet cold. Symptoms otherwise the same.

Calomel. gr. ij., c. Opio, gr. ss. Mist. Febr. Ung. Hydr. fort. femoribus fric.

19th & 20th.—Symptoms much the same.—Pergat.

21st.—Bowels open freely; tongue dry, furred in the middle, but red at the edges; pulse keeps up well, but the patient complains of great weakness; sickness the same.

℞ Acid. Nitr. ʒj. Aq. Font. Oj. Tr. Hyosc. ʒj. M. Cochl. Magn. iij. omni trihor.

22d.—A coloured discharge appeared yesterday; abdomen less tense, but pain still on left side; tongue not quite so dry; bowels open.

Hirud. vj. part. dol. Repr. alia.

23d.—Discharge stopped, pain relieved by the leeches; tongue moist, pain less; skin cool and soft.

24th.—Pain again severe.

Hirud. vj. hypogast.

Slight discharge returned on 25th.

26th. — Tongue quite clean and moist; bowels relaxed.

℞ Tinct. Hyosc. ʒij.; Spt. Æth. Nit. ʒij.; Magn. Carb. ℈j.; Aq. F. ℥viiss.; Cochl. Magn. ij. ter die.

27th.—Perspired somewhat during the night, for the first time; tenderness at hypogastrium returned.

Hirud. vj.. Rep. Mist.; Rice diet. Morph. Acet. gr. ¼; Ung. Hyd. fort. abdom.

Nov. 4.—Has continued to improve, though slowly. The last two days troubled by diarrhœa, and passed some clots of blood: this was followed by small portions of putrid placenta. After this time she gradually recovered.

Case II. Oct. 21.—Caroline Collyer, æt. 18 (first child; duration of labour, twelve hours), complained, on the third day after parturition, of great tenderness in abdomen, which was preceded by shivering, and accompanied by febrile symptoms. She was bled to ℥xij., had eight leeches on the abdomen, followed by cataplasms.

Opii. gr. ss. Cal. gr. ij., every six hours.

She took afterwards a mixture containing Tr. Hyos. and Nitric Acid, and in the course of a few days was convalescent.

Case III. Nov. 1st.—Bridget Sheen, æt. 21: similar symptoms as the foregoing case, but not so violent. First child: labour 18 hours.

Hirud. viij. abdom.; Pil. Cal. c. Opio. Catapl.; M. Febrif. Ung. femor; M. Camphoræ c. Tinct. Hyosc.

Did well.

[To be continued.]

CASE OF GRANULAR DEGENERATION OF THE KIDNEYS;

WITH REMARKS.

By Theophilus Thomson, M.D.
Physician to the Northern Dispensary, &c.

[*For the Medical Gazette.*]

Matilda S., aged 25, a pallid, sickly-looking subject, applied to me on the

17th of February in the present year, on account of swelling of the ankles and general debility. She had usually enjoyed an average share of health, but was always considered delicate, and her twin sister died at the age of ten. The patient had been delivered three or four months previously of a child, which she was still suckling. Her pulse was weak, but independently of simple debility, there were no prominent signs of disease. Griffiths's mixture was therefore prescribed, and she took it for a week with seeming advantage, the complexion improving, and the pulse becoming stronger. The state of the bowels was natural, and a pint and a half of urine of good appearance was passed daily. The swelling of the legs, however, being rather increased, she was directed to take half a drachm of bitartrate of potash, and a scruple of potassio tartrate of iron, twice a day. On the 28th of February, observing that notwithstanding an improvement in the general state of the patient the swelling of the ankles remained unaltered, I tested the urine with nitric acid, which threw down a curd-like precipitate, amounting in bulk to more than a fourth part of the liquid examined. She continued the medicine for a few days longer, without any apparent improvement. The patient now mentioned a circumstance, which she seemed previously to have forgotten, namely, that a month after her confinement, she had been caught in the rain while perspiring, and had been ill ever since. On the 3d of March, the urine being extremely albuminous, and the skin dry, I prescribed four grains of Dover's powder to be taken every night, twenty minims of antimonial wine in a draught of acetate of ammonia three times a day, and a small dose of castor oil occasionally.

On the 6th of March, the antimony appearing to irritate her stomach and impair her strength, was omitted, and she was directed to take acetate of ammonia in a mucilaginous mixture, to continue the Dover's powder every night, and castor oil every other morning.

Four days after the adoption of this plan the urine was found increased in quantity and less charged with albumen, and the skin was slightly moist. The patient continued to improve for about eight days, when in consequence of imprudent exposure to the weather on a cold day, her state became less favourable, and the quantity of albumen in the urine was found to be as considerable as at the first examination. She was directed to confine herself strictly to bed, to take ipecacuanha instead of her draught of acetate of ammonia, and, on account of a costive state of bowels, to omit the dose of Dover's powder.

On the 24th of March there was little change in the condition of the patient, but the skin being obstinately dry, ten-minim doses of antimonial wine were substituted for the ipecacuanha; the Dover's powder was again prescribed, and an occasional morning dose of castor oil.

No circumstance requiring notice occurred till the 31st of March, when there was some "lightness of head" and pain of loins. Six leeches were applied to the lumbar region, and four grains of James's powder substituted every night for the Dover's powder. The next day the skin was moist, and she seemed better, but on the 3d April I was informed that she had for two days suffered from headache. On visiting the patient, I found her materially worse, with some œdema of the face, and an expression of great depression. She raised her eyes languidly when addressed, and then closed them again as though only half awake; and her replies were slow and incomplete. The respiration was oppressed, inspiration attended with a slight snoring, and expiration with a hissing noise, and there was occasional snatching of the right arm. The carotids throbbed violently; the pulse was bounding, but not strong. During twenty-four hours the secretion of urine was almost suppressed. I directed six leeches to be applied to the temples, and a blister to the back of the neck, a dose of calomel and jalap to be given immediately, and five minims of tincture of cantharides every four hours. In the evening the patient became insensible, on which her friends, alarmed at her state, sent for a neighbouring practitioner, who opened a vein as she lay in bed, and removed about two pints of blood. I am told that during the bleeding her breath became more easy, and the snoring less decided, but she continued unconscious till the next morning. She then opened her eyes, nodded assent to remarks made in her hearing, and after remaining sensible for about half an hour, suddenly expired. The blood drawn was cupped and buffed, and the quantity of serum so disproportionately great as to lead me to inquire whether any water had been added. The serum was analyzed by my friend and colleague Dr. Rees, and found to contain 1-24th of a grain of urea, and only 58 grains of albumen. Its specific gravity was 10·28.

On an inspection of the body twenty-eight hours after death, with the assistance of Mr. Hobbs, of Southampton Row, and Mr. Dalton, the following appearances were observed. Body thin, not œdematous, but extremely pallid; lips almost the colour of the skin; calvaria thick and dense; arachnoid natural; vessels of the membranes almost empty. Brain bloodless and firm; ventricles dry; left lobe of the cerebellum perhaps a little less firm than the right.

The left pleura contained ℥viij., the right ℥vj. of bloody serum. These membranes were not in the least degree reddened, but were in some parts covered with soft masses of lymph. The specific gravity of the effused serum was 10·25.

The heart was flaccid and distended. The left lung at its apex presented some cicatrices, apparently produced by the closure of some cavities now occupied with calcareous deposition. The intestines were very pale. The liver was healthy, and the gall-bladder full of dark bile. The kidneys were remarkably small* and seemed to be imperfectly developed, the papillæ being minute, and each ureter, instead of forming a pelvis, dividing into several branches as it entered the kidney. These organs were, however, evidently much shrunk from disease, and strongly adherent to their proper tunic, on separating which a distinctly mottled surface was very apparent. The substance of the kidneys was uniformly pale, chiefly in consequence of an abundant deposition of small granules, which were most numerous in the cortical part, but encroached so much on the tubular structure as almost to supersede it; furnishing a good example of granular degeneration of the kidneys in the last stage.

Remarks.—1. The frequency with which albuminous urine has been observed to be associated with dropsical disorder, and the connection established by Dr. Bright between various alarming affections and this particular state of the kidneys, render it desirable to trace with care the phenomena attending any marked instances of the disorder. The case now detailed appears interesting more particularly on account of its uncomplicated character. So completely was all disorganization limited to the kidneys, and so little was their external appearance altered, that but for the researches of the distinguished physician above mentioned, the complaint of this patient would have been involved in obscurity, which even a post-mortem examination might have failed to remove.

2. It affords an example of death from coma entirely independent of arachnitis or cerebral effusion, but probably having relation to suppression of the renal secretion, and referrible either to the admixture of urea or of some other irregularity in the ingredients of the blood. It is true that the proportion of urea in the serum of this patient was considerably less than that which is occasionally found in those who recover from such complaints, but it is reasonable to suppose that, in susceptible subjects, the suddenness of its introduction materially increases the danger.

3. It serves in some degree to illustrate the favourable effects of the diaphoretic plan, to which the attention of the profession has been forcibly called by Dr. Osborne, of Dublin. This method of treatment is perhaps the most promising of those hitherto recommended, and acetate of ammonia and Dover's powder among the most appropriate of remedies of the class. In the early stage of the disorder, especially when the specific gravity of the urine is not much below the natural standard, diuretics may be useful, but in more confirmed and aggravated cases, with urine of low specific gravity, these remedies often tend to lessen the quantity of the secretion, and to increase the proportion of albumen. In some cases of considerable duration, I have observed great relief and even apparent cure

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* One of these kidneys is in the museum of King's College; the other in my own possession.

produced by spontaneous diarrhœa, but with the exceptions above noticed, and some others to which I may hereafter refer, I have rarely been able, in severe examples of the disease, to connect even partial recovery with the plan of treatment employed.

4. It illustrates the agency of the most common exciting cause of the disease, namely, exposure to cold and damp. The most frequent predisposing cause is probably a strumous constitution, but spirit-drinking appears to have considerable influence both in predisposing to the affection and in exciting it.

5. There remains the interesting question whether the disease be a cause or an effect of the attendant morbid condition of the blood. Several considerations favour the opinion that it is an effect. There are various phenomena consistent with the supposition that scarlatina, and other diseases tending, under some circumstances, to charge the blood with fibrine, may under other circumstances, especially in scrofulous subjects, occasion a surplus of albumen. In the early stage, this condition may sometimes be remedied, but when a morbid deposit of any extent occurs in the kidneys, an additional and permanent source of disorder is introduced, and new causes of general disturbance are brought into action. When no acute affection has preceded the occurrence of granular disease, it may be suspected that the fault lies primarily in the digestive organs, which fail to convert the food into healthy blood. To explain why a general cause of disorder operates on certain parts in preference to others may often be difficult, but in the circumstances under consideration it is reasonable to expect that the kidneys should first suffer, since they are the natural outlets for an excess of albumen. If the opinions now offered be supported by recorded phenomena, they authorize a conviction that our treatment of the complaint under review is likely to be satisfactory, not according to the importance which we attach exclusively to the state of the kidneys, but in proportion as we bear in mind the condition of the digestive organs, the nervous system, and the blood.

Keppel Street, October 1840.

ON THE CHANGES IN THE BLOOD OF ANIMALS

DURING EMBRYONIC LIFE.

To the Editor of the Medical Gazette.

Sir,

In a paper "On the Incubated Egg," contributed by Mr. Towne to the 4th vol. of Guy's Hospital Reports, several facts are related apparently so directly opposed to the prevailing opinions regarding the decarbonization of the blood of the chick in ovo, that they at once attracted considerable attention, and moreover excited a very general feeling of necessity for some additional experimental inquiries into the subject, before admitting the validity of the conclusions that might be drawn from them. At the suggestion, and with the assistance of Dr. Sharpey, an endeavour was made to supply this obvious deficiency, and the results were stated by him in one of his lectures on embryology delivered in April last. Since that time the observations have been extended and confirmed; I have therefore taken the liberty to forward you a brief record of the same; the insertion of which in your journal, together with the accompanying remarks, will much oblige,

Sir,
Your obedient servant,
John Marshall.

University College, Oct. 17, 1840.

The necessity for the occurrence of certain changes in the blood of animals during embryonic life, equivalent to those dependent on respiration in their adult condition, is admitted by all modern physiologists, who, relying upon the analogical arguments derived from the general unity of pupose, harmony of design, and simplicity of means, displayed in the same organic function throughout all its grades and varieties, have concluded that the blood during both periods of existence undergoes respiratory changes which, though differing in degree, are not only equivalent in effect, but perfectly identical in nature. According to this view, the elimination of carbon from the blood of the embryo, is (in part) effected by a mutual interchange between the gaseous elements of that fluid and those of the surrounding medium, whether it be air, water, or the maternal blood; the oxygen consumed in this process, being invariably derived from a source extrinsic to the ovum, and in no case from the immediate decomposition of any previously existing chemical compound. Nor are these opinions founded upon theory alone; they receive confirmation from many incidentally recorded facts, as well as from the results of experiments intentionally performed, from which it appears that the due development of an embryo cannot occur without the presence of some oxygenated medium. The experiments alluded to are those of Jörg, Michelotti, and Spallanzani, on the ova of insects, and those of Reaumur, Viborg, Pfeil, and more particularly of Schwann, on the egg of the common fowl. Occasional facts have, however, been recorded, apparently tending to very opposite conclusions; namely, that the decarbonization of the blood of the embryo is independent of any external agent, that it is effected by means of decompositions and recompositions taking place within the ovum itself, and that the source of the oxygen is therefore altogether intrinsic. Of this character are the observations of Ermann and those of Mr. Towne on the egg of the fowl. The former of these have been successfully met and controverted by Schwann.* It is therefore the latter only that we propose to examine.

It would appear that the first doubts entertained by Mr. Towne as to the truth of the present views regarding the respiration of the embryo bird, arose from his having observed at the commencement and during the progress of incubation, a gradually increasing opacity and density in the lining membrane of the shell, which it was thought by him would offer a continually increasing resistance to the ingress and egress of gases. To those, however, who are familiar with the facts known relative to the diffusion of aeriform fluids, it will readily occur that every increased density of the membranes, from the deposition of earthy matter within, would be totally ineffectual as a means of preventing that diffusion. Moreover, it has been ascertained by Prout,† that, of the total loss sustained by an egg during twenty one days' incubation (amounting to 160 parts in 1000), 50 parts are lost during the first week, 80 in the second, and 30 in the third. It is evident, therefore, that the shell and its membrane are quite as pervious (we do not assume them to be more so) during the second, as in the first week; and the relative diminution of loss in the third week cannot be regarded as proving an increased resistance to evaporation, until it has been shewn to be independent of all other circumstances. Again, Prevost and Dumas,‡ state that the loss during the entire period of incubation is greater, in the proportion of 135 to 125, in impregnated than in unimpregnated eggs, although the lining membrane of the latter, according to Mr. Towne's own observation, undergoes no change.

Proceeding, however, upon this erroneous supposition, to seek for the proof on which the present theory of decarbonization is based, Mr. T. concludes it to consist in the fact, that the development of the chick in ovo has been prevented by rendering the egg-shell impervious to air by means of some varnish; but since the innocuous character of varnishes thus employed appeared at least very doubtful, he considered the experiments in question to be imperfect, and deemed it necessary to repeat them in such a manner as to "prevent entirely the admission of atmospheric air through the shell, and at the same time to avoid, as much as possible, the introduction of any foreign matter which might prove injurious to the embryo." With these objects in view he coated several eggs with four layers of paper saturated with liquid albumen, and also varnished them over several times with the latter substance; thus forming a covering, which, when dry, he "felt convinced was entirely impermeable." In all these eggs, when submitted to incubation, and also in another coated with five layers of the prepared paper and three coats of paint, the progress of development was perfectly natural: a result which appeared to him to be satisfactory and conclusive, as far as its hostility to the present theory of decarbonization is concerned.

The propriety of rejecting all experiments in which varnishes of a noxious character have been directly applied to the shell, cannot be denied, but it is incorrect to suppose that such experiments constitute the foundation of the received doctrine, which, far from depending on any isolated fact, or even on a single series of experiments, is at once indicated by *à priori* considerations, supported by analogy, and confirmed by the direct and unexceptionable observations of Schwann. Instead, therefore, of the apparently contradictory results, obtained by Mr. T., creating any doubts as to its truth, they rather give rise to a suspicion of some fallacy in the experiments themselves, and naturally suggest the question, were the coatings employed by him absolutely impervious to gases? To this, it is conceived, the following statements will afford a satisfactory reply:—

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* De Necessitate Aeris Atmospherici ad Evolutionem pulli, &c. 1834.

† Philosophical Transactions, 1822.

‡ Annales des Sciences Méd. vol. iv.

A circular opening, about an inch in diameter, having been made at the small extremity of several eggs, and their contents allowed to escape, one end of a piece of glass tube, a few inches in length, was accurately fitted into the orifice in each shell, and then secured in its connection by strips of tissue paper saturated with liquid albumen. In one of these compound tubes the line of junction between the shell and the tube was hermetically sealed with melted bees' wax. In two others the whole shell, and about an inch of the adjacent part of the tube, were covered with strips of paper softened in albumen, in the same manner and with the same precautions as were adopted by Mr. Towne. Seven thicknesses of paper were employed in one case and six in the other—one, and often two coatings of liquid albumen, intervening between the several layers; and lastly, when all was dry, the junction of the shell and tube was effectually secured by means of three coats of paint. In this manner three diffusion tubes were constructed, the upper end of one being closed simply by an egg-shell and its dried lining membrane, those of the other two by that membrane, by the shell, and by the several layers of albuminized paper and albumen. On placing the open end of the first tube, perpendicularly into mercury, and then producing a difference in the level of that fluid within and without the tube, by alternately depressing and elevating the tube (about an inch and a half or less), the mercury on the inside rose or fell accordingly, the air being displaced through the porous shell and its lining membrane, and again re-entering in the way it had escaped. The same experiments repeated with the second and third tubes, (closed with the coated shells) was attended with similar results, the rise and fall of the mercury being somewhat slower, but still sufficiently rapid to be perfectly visible to the eye of the observer. The three tubes were afterwards employed in hydrogen diffusion experiments, with the most complete success. On a close examination of the surface of the dried coating with a lens, it was observed to be traversed by a number of minute cracks, assuming every possible direction. Indeed it was found that thin layers of liquid albumen, even when dried at ordinary temperatures, invariably cracked in this manner—an event which the heat necessary for incubation would only render more certain of occurrence. It was remarked, moreover, that the application of a second layer of albumen only increased the number of fissures existing in one already dried, apparently in consequence of the freshly applied stratum itself undergoing a contraction whilst drying, subsequently to its union with that previously applied. The permeability of the covering of albuminized paper having been thus established and explained, the evolution of the chick in eggs so covered need no longer excite surprise. But since Mr. Towne also succeeded in carrying on development beyond the 12th day in an egg coated with five layers of the prepared paper and three of paint, the diffusion tube, No. 3. (already covered six times with paper) was painted over three times, and another tube was prepared and covered in the same manner, but so contrived that the lining membrane of the shell was kept constantly moist during diffusion experiments in which carbonic acid gas was employed. In neither of these tubes, even when the experiments were continued for four weeks, did the slightest mechanical permeation or diffusion occur. It by no means follows, however, that the single egg painted by Mr. T. was equally impervious to air; on the contrary it may be safely asserted that evolution could not have proceeded naturally for 12 days, had the access of air been effectually prevented. The observations of Schwann, indeed, afford evidence, as strong as negative results can do, that without oxygen normal development is arrested after the 15th hour; but since results of a negative character become valuable only in proportion to their number and constancy, the following experiments were performed with a view of adding to the one, and of submitting the other to still further tests:—

Out of a number of newly-laid eggs obtained from the same poultry yard, some (taken indiscriminately) were covered twice with portions of bullock's intestine, fresh, well washed, and thoroughly cleansed from fat; this double covering was tightly applied over the egg, so as to leave no intervening air, and was carefully secured at each end. After becoming dry they were covered three or four times with strong glue-size (applied only lukewarm) containing a small quantity of sugar to prevent its cracking. They were again allowed to dry, and were then placed under olive oil, in an incubatting machine, together with the remainder of the eggs obtained at the same time and from the same source, which were simply supported above the surface of the oil. Four eggs thus covered and placed under oil, with three in their natural condition, were employed in the first experiment, in which incubation was continued 108 hours; in another, six covered, and under oil, and six uncovered, were used, the period of incubation being 120 hours; and in a third experiment the same numbers were again employed, one of the covered and uncovered eggs being examined at the end of the 7th, 13th, 20th, 32d, and 48th hours.

In two out of the sixteen eggs thus incubated under oil, the membrane of the yolk adhered to that of the shell, and the blastoderma was accidentally ruptured in opening them; but in the remaining fourteen its precise condition was carefully examined; and it was ascertained, as in Schwann's experiments, that development had been limited to a mere extension of the germinal membrane, though to a greater degree perhaps than had been noticed by him, in some having obtained a diameter of an inch and a quarter. In none of the sixteen eggs, however, was there any trace of embryo or blood.

Against these experiments three objections may possibly be urged—one having reference to the use of the oil, another to the fertility of the eggs, and a third to the degree of care with which the artificial incubation was conducted. To the first of these objections it will be sufficient to reply, that, on removing the eggs from the pan of oil, the glue-size was always perfectly firm and entire; that the outer portion of intestine adhered intimately to the inner one, and this again most closely to the shell; that no greasy spots could be detected on the latter; and lastly, that no diffusion occurred in a compound tube fitted up with an egg-shell covered in the same way. From all these facts it may be safely inferred that the oil could not have penetrated even to the shell.

In answer to the two latter objections it may be remarked that, out of eighty-four eggs, obtained from the same source, and artificially incubated by myself during the past summer, in three only were there no traces of evolution; that out of the fifteen placed in the machine along with those under oil, only one failed; and finally, that in fourteen out of the sixteen incubated under oil, the actual occurrence of development, though of an abnormal character, afforded abundant proof of their fertility, and at the same time gave a positive character to experiments which otherwise would have been merely negative.

It is almost superfluous to remark, in conclusion, that the preceding results entirely coincide with those obtained by Schwann, and harmonize with the generally received opinion regarding the extrinsic origin of the oxygen employed in the respiration of animals during their embryo life; for the facts ascertained with regard to the ova of birds cannot be limited in their application to that particular class of animals, but must aid in extending our knowledge concerning the nature of the respiratory function in every kind of ovum.

ANALYSES AND NOTICES OF BOOKS.

"L'Auteur se tue à alonger ce que le lecteur se tue à abréger."—D'ALEMBERT.

A Practical Work on the Diseases of the Eye, and their Treatment medically, topically, and by operation. By FREDERICK TYRRELL, Senior Surgeon to the Royal London Ophthalmic Hospital, &c.

It can scarcely be expected that we should undertake to give a digest of the contents of two large volumes on this subject, or even of all the novelties and peculiarities which they contain; for although, after the publication of so many treatises as have appeared of late years in this most fertile of all surgical fields, it is certain that no one writer could offer much that had been previously unwritten, yet he would be a bold reviewer, who, in a case like this, would undertake to claim and establish for any new author all that he may seem to merit for originality either in the description or in the treatment of ophthalmic diseases. It would be difficult to do so in any case, but in none more than in the present; for Mr. Tyrrell affords no clue by which one could detect for how great a portion of his knowledge in this branch of science he is indebted to others. His volumes present a feature singular in this department of surgery—that of an almost absolute absence of reference to any others, except in the very rare passing allusions which they contain to the habitual practice of Mr. Saunders, and a few others. And we believe that in this there is no intentional concealment of the assistance that the author has received from reading, but that he has, in fact, worked out, by himself almost, the whole subject of ophthalmic surgery so far (and this is to no small extent), as he is acquainted with it. The universal and most prominent character of the work is, that it is eminently practical; if the pages were counted we believe that at least three-fourths would be found to be directly connected with the treatment of disease, and not one-tenth which have not more or less evidently that object distinctly in view. In short, Mr. Tyrrell has here given, in an orderly manner, all the convictions with which he has been irresistibly, and perhaps imperceptibly, impressed during twenty-two years' service as assistant and full surgeon to the Eye Infirmary; and although he may seem to hold to some of his opinions and modes of practice with more tenacity than the observations of others would warrant, yet on the whole there is probably no work which the practitioner could more safely take as his guide in the treatment of ophthalmic diseases.

In other respects than this relating to the details of treatment, Mr. Tyrrell's work is inferior to some that have preceded it, both from English and from German authors. Those of the German school especially surpass it in accuracy of anatomical details; and one could not have a better proof that the present work is not indebted to any of them for the good that it contains, than the imperfectness and sometimes inaccuracy of its anatomical details, which are such as no one acquainted with German ophthalmic literature. even by translations, could have fallen into When, for example, it is said (vol. i. p. 210), "We cannot, from simple anatomical examination of the cornea, trace any organization, as neither arteries, veins, nor absorbents, can be detected," we perceive at once that the writer never read that its arteries have been injected (by Romer and others) passing from the conjunctiva towards the centre of the cornea, and on their course bending into the substance of the latter, and that even its nerves have been distinctly and visibly demonstrated by Pappenheim, Schlemm, Bochdalek, and others, and that their arrangement forms part of received anatomical science in every school in Germany. We might point out similar deficiencies, and occasional errors, in the anatomical description of all the other tissues of the eye; and for these, if anatomical accuracy be, as is generally held, the first step to surgical certainty, a systematic writer can claim no fair excuse, after he has had the opportunity afforded him of reading the more true descriptions in his own language, in this and other contemporary journals, and in the various works recently published on physiology.

But we rather fear that the step is not short between the anatomy of the eye and the cure of its diseases, and that here, as in every other part of medicine, it is a fortunate rarity when physiology can suggest or encourage successful practice. Mr. Tyrrell's practice is certainly an example of this melancholy truth; his anatomy we have shewn is often defective, sometimes incorrect, yet his treatment of the diseases of the eye is, we know, and hundreds of his pupils can confirm our statement, as successful as that of any ophthalmic surgeon in Europe, and far more so than that of those who could best improve his knowledge of anatomy. It is in vain to deny that the instances are numberless which prove (whatever introductory lectures may say) that anatomy and practical medicine at present go on in distant and not even parallel lines of progress; and that if the one *must* be the foundation of the other, and can alone support it securely, the superstructure of scientific and successful practice will not be raised to an appreciable height for centuries to come, although during all the time before that consummation arrives disorders may be satisfactorily alleviated and cured by the rules of simple and well-matured experience.

Mr. Tyrrell's practice we have said is well known to be remarkably successful, and it is fortunate that the portion of it which is most peculiar to himself is capable of imitation by any discerning and cautious practitioner. The modifications of some of the operative proceedings which he has introduced, require, that their full value may be obtained, no inconsiderable share of the perfected dexterity of their inventor; but these form only a small portion of that which will be found useful in his suggestions for treatment.

The most valuable part of his work is undoubtedly that which treats of the medical management of the various diseases, and especially those which are so prolonged and tedious, that, in the majority of cases, both patient and physician would give them up as hopeless. But mere long continuance of disease seems to give Mr. Tyrrell comparatively little uneasiness: if the disease were long in establishing itself, then must the surgeon be patient in his endeavours to uproot it, and months, or even years, must pass before the steady employment of means that are sure to benefit, if not to cure, must be desisted from. It probably adds to the confidence with which he adheres to the treatment of a case, however long it is in giving visible encouragement, and to the energy with which he is enabled to persuade the patient to keep steadily to his plan, that Mr. Tyrrell believes all that he does for the diseases of the eyes is founded on strictly determined rules of pathology. And, indeed, when the result is so good, we know not if it would be wise to question the truth of opinions upon "power" and "debility," and "insufficient arterial action," and so on, lest the confidence in the treatment which they are supposed to suggest should be loosened. Still we cannot help suspecting that the author's theories, instead of suggesting his practice, are really all *ex post facto*.

The chief novelty in practice, which Mr. Tyrrell has more than his predecessors encouraged, is that of admitting a generous diet, and administering steadily a course of slightly tonic remedies, in nearly all cases of long standing, and obstinate inflammations of the different parts of the eye. Nearly all these he holds are the result of insufficient power in the system to remove the evils which have resulted from some disease, perhaps accidentally introduced; in other words, of some general debility by which the body is rendered unable to cure, by its own efforts, a local disease. The sovereign remedy for these affections is bark and carbonate of soda, five grains of each three times a day, a mild but generous diet, and the most careful attention to the general health. These, and the administration of numerous, but small doses of mercury, in particular cases, are Mr. Tyrrell's principal remedies: and no one who has watched his practice at the Eye Infirmary will hesitate to affirm that their results, when pursued with that perseverance, and that steady confidence, which he can communicate from himself to his patients, have in numberless cases been most striking.

It is not to be supposed that no discrimination is necessary to determine the class of cases in which either of these remedies is to be adopted; but the present work is well adapted to guide every practitioner in his decision in this as well as on many other subjects. In short, the author has done his best to make his reader as good a practitioner as he is himself, and for this he deserves the fullest praise.

We cannot conclude without noticing an unhappy chapter the author has written—that on Strabismus, in which he expresses his confidence in the various popular methods hitherto employed, and his conviction that operative proceedings are unadvisable. His book was published early in the present year. How many thousand times have his former conclusions been practically contradicted by himself as well as others in the last few months! This, however, is the fault not of the author, who does not possess the power of *prévoyance*, but of the age we live in, and of the industry and rapidity with which novelties are worked out—a rapidity so great, that wisdom must confine itself to saying what is, and leave in silent expectation what is not, probable.

MEDICAL GAZETTE.

Friday, November 6, 1840.

> "Licet omnibus, licet etiam mihi, dignitatem *Artis Medicæ* tueri; potestas modo veniendi in publicum sit, dicendi periculum non recuso."
>
> CICERO.

BIRTHS, DEATHS, AND MARRIAGES, IN ENGLAND.

THE second annual report of the Registrar-General of births, deaths, and marriages, in England, is now lying before us. To every thinking man such a document is of value: to the philosophic practitioner it must be of profound interest. He will here see the results of the practice of physic on so large a scale, that he may almost venture to deduce laws from the facts thus forced upon his attention; or, at any rate, he may prepare the way for the future establishment of truth, by the destruction of favourite errors. These results form no bad corrective to the picked cases usually put forth. A candid and clear-headed correspondent says of the cases which are published in our weekly journals, "I care not what diseases you investigate, if you take the published cases as a fair statement of the results of treatment, you can only come to one conclusion—that the power of medicine and surgery is stupendous; that its failure is uncommon." But when we come to experience speaking in long figures, how different is the tale! "Table *(q)* exhibits the progress of four or more epidemic diseases in the metropolis,—measles, typhus hooping-cough, and scarlatina, which have not yet been effectually controlled by medical science."—Mr. Farr, in Report, p. 98.

The Report commences with a letter addressed to Lord Normanby by Mr. Lister, the Registrar-General.

Several of the points touched upon in it are of great interest. The mean mortality in England and Wales during the two years 1837-8, and 1838-9, was about one in forty-six: the mortality being less in the latter of the two periods, owing to its comparative exemption from destructive epidemics.

Almost every marriage, says Mr. Lister, is duly registered, and every register of marriage is signed by the persons married: those who cannot write, put their marks. Hence these registers enable us to make a rough guess at the quantum of education which is diffused among the mass of the community, and thus to allay the fears of those praisers of the past time, who lament the spread of knowledge, and who believe, with caricaturists and epigrammatists, that coal-heavers read Byron, and dustmen indite sonnets. Your sorrowful opponent of the march of intellect, before he weeps too bitterly over the fallen state of ignorance, should first ascertain whether it really has fallen so deplorably. There is a pleasant story in the books, that Charles II. wishing to make merry at the expense of the Royal Society, proposed to them the problem, "How is it that a pailful of water is not increased in weight, if a fish be placed on the surface?" Many and various, says the historian, were the solutions offered by the illuminati, until one of the scientific committee, more sceptical than his brethren, proposed to try if the addition of the fish did not actually increase the weight of the pail: to the unspeakable astonishment of his colleagues, it did. The continual deplorements concerning the amazing spread of knowledge admit of a like answer. Quere, is every one so painfully over-educated as prosers and satirists suppose? Why, no! answer the tables before us; for of 242,166 persons married in the year ending June 30th, 1839, 41 per cent. could not write their names. We must recollect, too, that the great majority of the married were under thirty-five years of age, so that their years of learning fell within the imaginary period of hyper-education.

The proportion of marksmen and markswomen varies extremely in different parts of the kingdom. Thus in Bedfordshire, Monmouthshire, and North and South Wales, the mean of both sexes is, respectively, 60, 61, 58, and 59 per cent. In the metropolis it is 18 per cent., in Cumberland 24, and in Westmorland 27. The small proportion in London may arise from the facility with which the elements of education are obtained here; or, as a contemporary has suggested, from the continual immigration of artisans of the better classes. It is probable, too, that in a city where all the machinery of business is worked so actively, many thousands have discovered that even to sign their names, without any farther clerkly progress, is of itself a valuable accomplishment.

Mr. Lister gives the ages of the parties in 4,858 marriages. They are not selected cases, but are all that occurred in certain districts. There is nothing striking about them, as they agree very well with one's preconceived theories on the subject.

Thus, 158 men and 688 women were married between the ages of fifteen and twenty; 2,536 men and 2,527 women between twenty and twenty-five; 156 men and 134 women between forty and forty-five; 19 men and 6 women between sixty and sixty-five. At every age after twenty the number of men is greater than that of women, excepting betwen sixty-five and seventy, where we find 4 of each.

The number of buildings in England and Wales registered for the solemnization of marriages, before January 1839, was 1,332; to which 246 were added last year, making a total of 1,578. It is hardly necessary to observe that this list does not include places of worship belonging to the Church of England.

Mr. Lister again mentions a remarkable error which arises from the general disposition of the world to prefer round numbers in uncertain cases. It would appear from the ages at which death took place, as stated in the Population Abstract for 1831, that 30 is a much more fatal age than 29 or 31; 40 than 39 or 41; and so on. As life advances the exact age of the deceased is more and more frequently forgotten; and accordingly the Abstract gives only 25,782 deaths as having happened at fifty-nine years of age, and 26,084 at sixty-one; but 43,273 at sixty. At seventy, 53,953 deaths are supposed by the Abstract, but only 33,038 at sixty-nine, and 32,162 at seventy-one. This Abstract was extracted from the burial registers in England and Wales for eighteen years; so that this remarkable misstatement did not proceed from any temporary cause, but from the habitual inaccuracy of mankind. This error still continues; but it is so obvious, that it is not likely to mislead any one; and, in fact, the tables drawn up for insurance companies have always been formed by taking the mean mortality of quinquennial or decennary periods.

In considering the different portions of the kingdom, "the most marked and serious difference," says the Registrar General, "is that which is observable between the mortality of rural districts, and of large towns, as exemplified in the proportion of the deaths of children, and of persons dying at advanced ages."

The greatest proportionate mortality among children is at Manchester, where, of 1000 deaths, 496 were of children under 3 years of age.

But if we add Salford, and the suburbs, to Manchester, the mean deaths are reduced to 475, showing the influence even of suburban air on the rearing of children. In Devonshire ~~this~~ mortality is 296 in 1000; in Dorsetshire and Wiltshire 281; and in some of the northern counties only 253. It is remarkable, and to the beginner in these studies almost inexplicable, that while, in the whole of England and Wales, the mean mortality under 3 years of age was 343 out of 1000, in the metropolis it was only 338. Even allowing for the fact, that half of what is here called the metropolis is suburban, the result is staggering. The hasty statician might infer, that even if Crown Court is not quite so good a nursery as Devonshire, the New Road and Chelsea must be much better than the average of England, so as to make up for the comparative unhealthiness of our central alleys and bye-lanes. But, alas! the terrible perplexity of statistics consists in the difficulty of comprehending every necessary element in our calculation. The probable solution of the problem before us is, that the immigration of adults into London is so considerable, that their deaths necessarily transcend the usual proportion. Their mortality thus masks that of infants, whose unresisting frames sink before the attacks of disease in our crowded and mephitic courts, as the withered leaves of autumn before the east wind!

With respect to the deaths of the aged, the contrast between towns and country districts is still more marked. Thus in Manchester, out of 1000 deaths only 53 were at the age of seventy and upwards; in Liverpool 60; in the metropolis 99; in the North Riding of Yorkshire, and the agricultural parts of Durham, 202; and in Devonshire, 208. The average for England and Wales is 140.

The first paper in the appendix is a letter to the Registrar-General from Mr. Farr, in which he comments on the causes of death in England and Wales with his usual ability.

The rate of mortality was higher, he observes, in 1838 than in the last half of 1837. Small-pox and typhus prevailed epidemically; and the severe weather, which set in early in January, appears to have increased the fatality of pulmonary diseases.

When discussing the difference of mortality in the two sexes, Mr. Farr observes, that the higher mortality among the males has been attributed exclusively "to intemperance, wars, excessive fatigue, and other external causes;" but he thinks this explanation too narrow, and remarks that the differential mortality is greater before birth, and during early childhood, than in the more advanced ages. There is some justice in this additional explanation, though the old theories seemed sufficient of themselves. Intemperance and hard and unwholesome work are comprehensive categories, and are surely enough to account for a differential mortality of 7 per cent.

We will return to this subject on an early occasion.

CLINICAL LECTURES,

By W. Davidson, M.D.,

One of the Physicians to the Glasgow Royal Infirmary, and Lecturer on Materia Medica.

ANEURISM OF AORTA.

[Continued from page 222.]

We shall now shortly allude to another case, where a peculiar whistle accompanied the sounds of the heart at the time there were few or no bronchitic symptoms; and which was not observed when these afterwards became very severe; while there was every reason to believe, from the general history of the case, as well as from the stethoscopic signs, that there existed valvular disease of the heart, or some affection of the aorta, or perhaps both.

Samuel Inglis, æt. 18, was admitted on the 11th of July, 1840, with a severe attack of acute rheumatism in several of the large joints of five days' duration. Two years ago he was nine months in this infirmary with rheumatism, and what was believed to be pericarditis, accompanied with effusion; was readmitted for another attack a year ago, and recovered in about three months; after which he enjoyed tolerable health till within a few days before his present admission. His recent attack, in addition to the rheumatic inflammation, was characterised by urgent dyspnœa, palpitation, slight cough, percussion of precordial region extended; impulse of heart increased, seen over a large space, and greatest in cardiac region when in the horizontal posture, but on turning to the left side the impulse was also found to incline more to that side; sounds of heart are loud, and second was accompanied with an acute rasping or filing bruit, which was heard over the greater part of chest anteriorly and posteriorly on both sides of spine, resembling a souffle. There was a circumscribed elevation in left side, about two inches in diameter, nearly two inches below and external to nipple, in which the impulse of heart was very considerable, and which was particularly elevated at each pulsation, resembling a pretty loud whistle, and it seemed to accompany both sounds of the heart. It was most distinctly heard when the patient inclined considerably to the left side; but when he was made to turn to the right it completely disappeared. Both sides of chest measured equally around the cardiac region, viz. 17½ inches. A loud souffle accompanied the pulsations of the abdominal aorta throughout its whole extent. Pulse 100, tolerably full, and jerking. There was no sign, at that period, indicating any particular disease in the lungs, pleura, or bronchiæ. On the 18th of February, that is, about a week after his admission, the whistling sound was gone, and in its place there existed an acute filing bruit, such as is produced by a file acting upon a saw, while the rasp was very loud to the right of left nipple. There was also a change in his decubitus; for on his admission it was on either side, while at this period he could only lay on the left side, and on attempting to turn to the right, and also in changing his position from the sitting to the recumbent posture, an extremely acute lancinating pain was felt in region of heart. There were also numerous sonorous and sibilant rhonchi heard in left side of chest, and dry crepitation in inferior region of left back, accompanied with the expectoration of a thin glairy mucus. His rheumatic pains were much easier, but the dyspnœa was increased; the pulse more jerking.

March 2d. — Impulse of heart greater about two inches below and to the sternal side of left nipple. Acute filing sound still heard very distinctly in the situation formerly described to be tumefied, but the tumefaction was now gone, although there was still a slight thrill observable, and the sound was inaudible when he turned to the right side. The rasping bruit was heard most distinctly between left nipple and sternum, and also a little inferiorly, and distinctly under left clavicle, but not very loud. It was not perceptible in right chest anteriorly. Pain much less on turning from left to right side, or in shifting his position from the sitting to the recumbent posture. Numerous sonorous and sibilant ronchi are heard nearly over whole chest, and some crepitation in left back. Expectoration a semi-transparent, somewhat tenacious fluid. Pulse 84, moderate, not jerking; tongue white, moist; dyspnœa much less; urine rather scanty; slight salivation. His improvement continued, and he was dismissed on the 20th of April; there being at this time no acute filing sound in the situation formerly alluded to, but in its place there was a distinct sawing murmur; the impulse of heart was much less, although a very considerable jerk was still observable with the eye. He could now lay with ease upon his right side. Pulse 80, rather full, and slightly jerking, and rheumatic pains were entirely gone.

It is quite obvious from the history of this case that the musical sounds which occur in bronchitis had no concern in the production of the peculiar whistling murmur which was heard in a circumscribed spot of our patient's chest; for the bronchitis was very slight during the period that it was audible, and after the inflammation of the bronchial tubes became severe its character was altered. Besides, the holding of the breath, or a suspension of the respiratory process, had no effect in modifying or suspending it. How, then, is the peculiar whistle to be accounted for? The analysis of this case is rendered somewhat obscure from there being two classes of symptoms present; viz., first, those depending on chronic disease of the heart, viz. the rasping bruit, indicating valvular or other disease, perhaps of the aorta, and increased and extended impulse, indicating hypertrophy with dilatation. Second, acute symptoms supervening upon these, after an attack of acute rheumatism, viz. urgent dyspnœa, palpitation, anxious countenance, decubitus on left side, and acute lancinating pain on turning to right; a jerking impulse in cardiac parietes, a quick jerking pulse, a circular elevation in left side, where a peculiar whistling, and afterwards an acute filing bruit was heard, and where impulse of heart was very considerable.

Are these last signs sufficient to warrant us in assigning the disease, under which our patient laboured, to be pericarditis or endocarditis? We are inclined to think that both of these affections existed. The whistling and acute filing bruit probably depended on inflammation existing in the left cavity of the heart; for it was heard only in the extreme left of the cardiac region and was not propagated along the course of the large vessels; while, when the heart was removed from contact with the ribs of left side, by the patient's turning to right side, the sound was altogether inaudible in any region of the chest. It would seem, from this last circumstance, that the heart either acquired a close proximity to the ribs, for the production of this sound, or that the part of this organ from which it proceeded was so far removed from the sphere of the stethoscope (by the change of position), that it could not be communicated. Upon the whole, then, it appears that musical murmurs in the heart, such as cooing and whistling, may be occasioned by various diseases; such as, first, disease of the aorta without valvular affection, as in the two first cases detailed; second, disease of the mitral valve, as in the case related by Dr. Elliotson, and, perhaps, in the case we last detailed; and, third, in regurgitant disease of the aortic valves, as stated by authors. And need we be astonished that these different diseases should be concerned in the production of musical murmurs, when all of them are ascertained to be productive of cardiac sounds, and when we reflect how the qualities of the murmur must vary according to the size, form, structure, &c. of the diseased parts, as well as according to the greater or less impulse of the fluid which passes over them?

Diagnosis of Aneurism. — Should the symptoms, in the case first detailed, have warranted us in setting it down as one of aneurism, or one of diseased heart? There was pretty distinct evidence of hypertrophy; but, so far as the other symptoms connected with the heart and aorta were concerned, no absolute conclusion could be drawn from them. The rasping and cooing murmur was, no doubt, heard over the larger portion of the chest, both anteriorly and posteriorly, but the impulse was not so great in any situation as in the cardiac region; the sound was also uniformly double, and not more loud or coarse in the direction of the large vessels. It was, therefore, impossible, from these circumstances, to determine whether it was valvular, or other disease, probably of the aorta, or aneurism of that vessel. There were several circumstances, however, which, when conjoined with the symptoms enumerated, were calculated to excite a suspicion of aneurism, viz., pain and feeling of weight and constriction in epigastrium, shooting along sternum to top of chest, difficulty of swallowing, and feeling of constriction or obstruction at top of sternum, to which may be added the souffle in abdominal aorta. Authors differ considerably respecting the signs of aortic aneurism.

Dr. Hope considers the following as conclusive of the existence of aneurism:—

"1. The first aneurismal sound, coinciding with the pulse, is invariably louder than the healthy ventricular sound, and generally than the most considerable bellows murmur.

2. The aneurismal sound, from its source towards the region of the heart, is found to decrease progressively.

3. The second sound actually does sustain this progressive augmentation on advancing towards the heart, &c.

4. Aneurismal pulsation is a deep hoarse tone of short duration, louder than the most considerable bellows murmur of the heart, resembling the rasping of a sounding board from a distance. The bellows murmur of the heart is soft and prolonged, with a gradual swell and fall."

We were unable to verify all of these signs in our patient; but from this we do not, by any means, intend to insinuate that they are not generally applicable; for Dr. Hope's powers in the diagnosis of diseases in the chest are well known and acknowledged. The diagnostic symptoms of aneurism, in this case, must have been necessarily very much obscured by two causes; first, by the loud cooing murmur which accompanied the sounds of the heart; and, second, the small size and deep seat of the aneurismal tumor must have rendered the sounds less loud than if it had been large and more superficial. The following remarks of Dr. Williams are agreeable to our experience:—"That on the whole, although various circumstances may be taken into account, so as to form a pretty correct opinion, we are still without any of those simple and certain diagnostic marks which may be obtained in other diseases of the chest." The following is a case where the symptoms of aortic aneurism were very distinct, and in which both sounds were louder in the aneurismal tumors than in the region of the heart:—

James Kean, æt. 50, tailor, admitted 16th Oct. 1839, complains of constant and severe pain in front of chest, shooting to back, head, and along arms, accompanied in latter organs by a sense of weight and numbness, palpitation, dyspnœa, which is much increased on exertion, and occurs in severe paroxysms. Occasional headache, vertigo, hæmoptysis, cramps in muscles of neck, sleep much disturbed; pulse 90, small, and regular; tongue white; bowels regular; skin cool; sweats considerably; decubitus on right side. About middle of sternum, a little to its right side, there is situated a soft pulsating tumor, nearly the size of a walnut, which disappears on pressure, but immediately returns. A similar tumor is situated between the second and third ribs of right side, about an inch from the former. The portions of sternum and rib in the immediate vicinity of tumors seems to be absorbed. The whole of cardiac region is slightly tumefied, and there is extended dulness of percussion in that situation. Sounds of heart in cardiac region are regular, not loud, and sound is accompanied by a very slight souffle. A very strong rough souffle accompanying both sounds, particularly the first, over tumors, at the upper part of sternum and clavicle, particularly over clavicle of right side. A similar sound, though less intense, is heard along carotid, brachial, and femoral arteries, but no perceptible sound is discovered along abdominal aorta. He dates his illness from an inflammatory attack which he laboured under about three years and a half ago. First complained of palpitation, oppression of præcordia, &c. about eighteen months ago, and about a year ago the sternal tumor first made its appearance after great exertion in lifting a heavy weight, and the other in about eight or nine months afterwards.

13th Feb. 1840.—According to the report taken at that time the first sound of tumors is louder, and impulse is greater in left than in right, and in both are stronger than in region of heart. Second sound is pretty similar in both tumors, and appears somewhat louder than in cardiac region. A double rasping souffle is heard nearly over whole of right anterior chest, less distinctly in upper part of left; also very distinctly above right clavicle at top of sternum, but a very slight souffle above left clavicle. A slight double rasp is heard in supra-scapular region, but not distinctly in other parts of back; pulse 68, moderate, and similar in both radial arteries. He was affected with diarrhœa and febrile symptoms, on the 22d February, and, as some slight alteration in the signs occurred, we shall quote the report taken on the 8th March. Sounds in tumor double, are accompanied with a slight souffle, particularly the first, but no rasp, and are both louder than in cardiac region. A rasping bruit, however, was heard at top of sternum and above right clavicle, accompanying first sound. Both sounds of heart were heard in upper part of back near spine, but not accompanied by any murmur; pulse 90, soft, weak. He now had considerable anasarca of whole body, and was much weaker, and left the house on the 20th April, the anasarca being very great at that time; but the constriction of the chest and impulse of the tumors were rather less.

In this case there are very positive signs of aneurism existing. There are two pulsating tumors towards the right side of the chest, in the region of the arch of the aorta, in both of which there is a strong impulse, greater than that of the heart in cardiac region, and accompanied with a double rasping murmur. The same murmur, but with less impulse, is heard at the top of sternum, above both clavicles, but louder upon the right side. It is also heard double in right supra-scapular region, and a souffle is heard in femoral and brachial arteries. He has also most of the general signs of aneurism, such as pain and constriction of the chest, &c. It may also be remarked that, in this case, the first sound of tumors was much louder and harsher than first sound of heart, and impulse greater, and that the second sound of tumors was somewhat louder than second sound of heart. During the febrile attack, which he laboured under for about ten days in February, the impulse in both tumors, as well as in the cardiac region, was greatly increased, although the rasp was considerably obscured. During its progress, and particularly about its termination, the first formed tumor was observed to be much thinner in its parietes, particularly at its summit, and it communicated to the finger the sensation as if there was nothing but a very thin piece of integument intervening. We have no doubt that the temporary increased action of the heart and arteries had augmented the ulcerative absorption which is constantly going on in such cases, and, if it had continued much longer, would speedily have terminated the patient's life by the bursting of the tumor externally. When, however, the circulation became weaker, both the sounds and impulse of the tumors were much diminished, so that it is probable he may die from the effects of the dropsy and the other disease of the system, before either of the tumors ulcerate externally.

MR. WARBURTON'S BILL.

To the Editor of the Medical Gazette.

Sir,

You will, I am sure, excuse my correcting an error you have, like many others, fallen into, with regard to the circumstance of Messrs. Hawes's and Wakley's names appearing on the back of Mr. Warburton's Medical Bill.

Had we been lawyers instead of medical

men, we should none of us have been puzzled at the seeming absurdity of "three members of the House of Commons agreeing to bring in jointly a certain measure, and, before it has even passed its first stage, separating and forming three distinct parties."

In order, then, to set this matter straight, and give to the parties that deserve it the blame or credit attached to the introduction of this said Medical Profession Bill, the medical public should be made aware that it is solely due to Mr. Warburton, and that the names of Messrs. Hawes and Wakley have been placed there by Mr. Warburton, because the forms of the house require that at least two names should be upon the back of every bill introduced.

Messrs. Hawes and Wakley have had no more hand in the contrivance and composition of this said Bill than his Holiness the Pope of Rome had, and they have both publicly declared that they neither of them saw or heard a line of the Bill until after it was printed; so that when, in this week's GAZETTE, you state that it was brought in conjointly by the three gentlemen, many of your readers might (quite unintentionally on your part) be led into a serious error by your observations.

Messrs. Hawes's and Wakley's names are only to be taken as assenting to the general principle that some reform is required, not a particle of which, however, is to be discovered in Mr. Warburton's Bill, and had you, Mr. Editor, had a seat in the House, Mr. Warburton would very probably have quite as unceremoniously placed your name upon the Bill.

How far such a custom in the House of Commons, as has thus led so many of us into error, is desirable, it is not for me to decide; suffice it to say it is well calculated to puzzle the brotherhood of "butchers, bakers, and medical men."—I am, sir,

Your obedient servant,

VERITAS.

London, Nov. 2d, 1840.

[It certainly is calculated to mislead the uninitiated to find printed on the Bill the words "Prepared and brought in by Mr. Warburton, Mr. Wakley, and Mr. Hawes." However, we readily believe that the two latter gentlemen had nothing to do with it.—ED. GAZ.]

OPERATION FOR STRABISMUS.

To the Editor of the Medical Gazette.

SIR,

IN the last number of your journal you have inserted a short note of Mr. Lucas's, in which he says, "that his first operation for strabismus was performed on April 7th, 1840, &c. and that this operation is the next earliest on record to those of Professor Dieffenbach." Words to the same effect are used in the preface to his treatise, with the additional vaunt—"whatever merit attaches to the fact of being the first surgeon to perform it in this country, that merit I humbly yet distinctly claim." Similar statements are further to be read in the first and fifth numbers of the Provincial Medical and Surgical Journal.

Now, sir, these assertions and claims of Mr. Lucas are in direct variance with the first report of his cases, which appeared in the Lancet, April 18th, 1840, from which I will quote those passages which flatly contradict his present assertions: "The following cases prove that British surgeons have already applied this beautiful and simple operation to the cure of strabismus." Hereupon follows the report of Mr. Lucas, wherein he says, "The success which attended the operations (of Prof. Dieffenbach) induced me to repeat them on the *first occasions* which presented themselves to me." He now relates what he himself distinctly calls his *Case the first*, and at the head of the paragraph wherein he describes the operation he begins with the date *April* 11th, 1840, clearly contradicting his latter statement as regards the dates.

Mr. Lucas, in a subsequent number of the Lancet, states that he first became acquainted with Dieffenbach's new operation by means of the translation from the Berlin Medicinische Zeitung, in the British and Foreign Medical Review for April 1840. I, on the other hand, read Dieffenbach's original account in the beginning of February 1840; but certainly did not immediately proceed to operate upon a human being, as I wished first to convince myself of certain points regarding the healing process of the divided muscles, and of the best and simplest mode of conducting the operation, by making my first experiments on animals and on the dead subject. Thus well prepared, I operated on my two first cases on *April* 10th, 1840, and consequently *not* "experiencing great difficulties in performing the operation," as Mr. Lucas observes in his note that he did, I neither then, nor in any of my subsequent cases, found the slightest necessity for "the blunt hook for passing beneath the tendon of the muscle." My preliminary experiments, together with my first two cases, were published in the MEDICAL GAZETTE, April 17th, 1840.

The above facts, based upon publications appearing immediately after the first performance of the operation in this country, as well as the testimony in my favour of the Dublin Med. Press, April 29th, and the Med. Chirurg. Review, for July 1840, give clear and decisive evidence against the repeated assertion of Mr. Lucas, now brought forward more than six months after the original statement, and are irrefutable proofs that to my two operations belongs the merit of priority of performance and of publication. The reason why Mr. Lucas now attempts to substitute an earlier date to his first case is very evident; but such attempts, however often repeated, and however successful they may be with verbal assertions, have no power over printed facts, and can have no weight with the unprejudiced, who, after a fair consideration of facts, judge with accuracy and justice. As you, Mr. Editor, are of the latter class, and if you do not think this note against medical etiquette, I trust to your liberality for its early insertion in your valuable journal,—and remain, sir,

Your obedient servant,
AUGUSTUS FRANZ, M.D.

19, Golden Square,
Nov. 2, 1840.

VACCINATION FOR A SHILLING.

To the Editor of the Medical Gazette.

SIR,

Now the profession is on the *qui vive*, with reference to the bringing into operation the new Vaccination Bill, I feel every deviation from the ordinary course should be recorded in the public journals. Where I reside, in the parish of St. Mary's, Newington, the Board of Guardians has liberally offered the sum of one shilling per head for vacccination: this you will not feel suprised at, but would you believe that three men, calling themselves respectable members of the profession, have actually come forward and accepted it? Their names I give (Enoch D. Howitt, 5, Apollo Buildings, Walworth; Richard Prior, 9, Marlborough Place, Walworth; William Henry Dry, Trinity Terrace, Dovor Street,) for the benefit of the profession.

I am, sir,
Your obedient servant.
J. T. DARVILL.

7, Dean's Row, Walworth,
Nov. 3, 1840.

AMMONIA IN DISTILLED WATER.

DR. HERNEFELD has drawn the attention of chemists to the existence of a substance in distilled water, which has hitherto been unknown, though it probably often occurs, viz. carbonate of ammonia. If well-water be used for distillation, that which passes over possesses, as has long been known (especially at the beginning of the distillation), the property of being rendered very turbid by a solution of basic acetate of lead. This turbidity has been ascribed to its containing free carbonic acid; but it is much more probable that it results from the presence of carbonate of ammonia. Most wells contain nitrate salts, formed from animal remains deposited on the surface of the earth, and whose soluble constituents gradually sink into the strata of the soil with the rain water, and render the water of the wells impure. Among these soluble constituents is a small portion of nitrate of ammonia, which is decomposed by the double carbonate of lime formed in water during distillation, and passes over with the water.

SALADS.

SALAD herbs are cooling and refreshing. They correct the putrescent tendency of animal food, and are antiscorbutic. Salads are, at any rate, a harmless luxury where they agree with the stomach; and though they afford little nourishment of themselves, they make a pleasant addition to other aliments, and a graceful appearance on the dinner-table.

Lettuce, of the different sorts, or *salad* as it is often called, is the principal ingredient in those vegetable messes. It should be carefully blanched and eaten young; when old, its juices become acrimonious and hurtful. Lettuce possesses soporific qualities, and is recommended as a supper article to bad sleepers.

Radishes, when young, are juicy and cooling, but a very few days change their nature, and they become woody and acrid; when not very young they ought to be scraped.

Cress and *mustard* are cordial and grateful, and of an agreeable pungency; and *celery*, when young and properly blanched, by its peculiar nutty flavour contributes much to what Evelyn calls "harmony in the composure of a sallet."

A variety of other herbs mingle in full well-selected salads, such as sorrel, young onions, cucumbers, tomatas, endive, radish leaflets, &c. Many wild herbs were formerly employed, and are still used on the continent and in America, as saladings. * * *

Never make a salad till near the dinner-hour, as it will flatten and lose its light appearance by standing. Foreigners call many things salads we would merely reckon cold, little, dressed dishes. As this may produce a confusion of ideas in the young housekeeper we notice it here. Our ancestors had the same notion of what *sallets* were that the French still retain.—*Meg Dods' Cookery.*

RETIREMENT OF DR. CARSWELL FROM UNIVERSITY COLLEGE.

Dr. Carswell having been appointed physician to the King of the Belgians, has sent in his resignation as Professor of Morbid anatomy in University College, and as Physician to the Hospital. On Dr. Carswell's retirement being known, a large meeting of the students took place, at which it was unanimously voted to present an address to him, expressing their deep regret at the loss of his services, and their admiration of his character as an eminent cultivator of medical science, as a teacher, and as a man.—*Lancet*.

SUCCESSION OF IDEAS.

It has been supposed by some, that the state of dreaming involves a more rapid course of ideas through the mind; a vague notion however, as every thing that relates to the *εθνος ονειρων* seems destined to be, and seemingly incapable of proof. All that we can affirm here is, that the transitions are more frequent and abrupt than in the waking state, when the regulation of the will is present; and that, as respects rapidity in the succession of thoughts, it is probably as various during sleep as at other times. The evidence of such variation while we are awake is much more decisive. We derive it from consciousness in ourselves, and observation of the minds of others; and we are frequently able to apply a certain measure to these mental changes by their relation to things without.

One particular topic, rising out of this general view, has not been so much considered, as its interesting nature, and relation to all the mental functions, might have rendered likely. This is the variation in the faculty of the mind of holding one single image, or thought, continuously before it, as the subject of contemplation. The limit to this faculty in all men is certain and obvious, and in most cases narrower than is generally supposed. The persisting retention of the same idea manifestly exhausts the mind, and the effort persevered in beyond a given time does often more speedily dissipate it. But nevertheless, the power as to time is very different in different individuals, is susceptible of cultivation, and, if cultivated, with care not to produce exhaustion in the discipline, becomes a source of some of the highest excellencies of our moral and intellectual nature. It stands contrasted with that desultory and powerless state of mind which is unable to regulate its own workings, or to retain the thought fixedly on points most essential to the objects of it.—*Dr. Holland's Medical Notes and Reflections.*

SPEEDY AND CERTAIN RUBEFACIENT AND VESICANT.

Dr. Fehr, of Gundelfingen, frequently uses the following means with a beneficial result:—Bruised cantharides, concentrated acetic acid, and alcohol, of each four ounces. Digest for several days, and strain. The fluid to be applied on linen, or by rubbing.—*Pommers Zeitschrift*, Bd. i. g. H3.

ROYAL COLLEGE OF SURGEONS.

LIST OF GENTLEMEN ADMITTED MEMBERS.

Friday, October 30, 1840.

C. Fox.—D. C. Clark.—W. Goolden.—A. Prichard.—W. Hilbers.—W. Finlay.—R. L. Sleight.—F. S. Cornish.—J. C. Christophers.—F. W. Towle.—F. W. Casson.

APOTHECARIES' HALL.

LIST OF GENTLEMEN WHO HAVE RECEIVED CERTIFICATES.

Thursday, October 29, 1840.

W. C. Freer, Birmingham.—G. E. Stanger, Fleet, Lincolnshire.—T. B. Ireland, Ormskirk, Lancashire.—Thomas Hastings, Longham, Norfolk.—E. O. W. Whitehouse, Liverpool.—R. Counsellor, Durham.—O. Andrews, Canterbury.—J. Trotter, Coleford, Gloucestershire.—Godfrey Saunders, Maidstone, Kent.

METEOROLOGICAL JOURNAL.

Kept at Edmonton, *Latitude* 51° 37′ 32″ *N. Longitude* 0° 3′ 51″ *W. of Greenwich.*

Oct.	Thermometer.		Barometer.	
Wednesday 28	from 31 to	45	29·10 to	29·28
Thursday . 29	37	47	29·29	29 32
Friday . . 30	32	51	29·44	29·50
Saturday . 31	36	51	29·50	29·53
Nov.				
Sunday . . 1	33	53	29·58	29·36
Monday . . 2	44	54	29·44	29·50
Tuesday . 3	44	55	29·42	29·39

Wind S. on the 28th; S.E. on the 29th ult. and three following days. The 2d inst. S. in the morning, and S.E. in the afternoon and evening. N.E. on the 3d.

On the 28th generally clear, rain fell during the morning; the 29th cloudy and frequent showers; the 30th, morning overcast, otherwise clear; the 31st ult. generally clear; the 1st inst. a general overcast, rain in the evening; the 2d clear, except the morning, rain with boisterous wind; the 3d generally cloudy.

Rain fallen, ·575 of an inch.

November Meteors.—We have to remind our readers, that the next periodic fall of these phenomena may be expected to take place from the 11th to the 15th of the present month.

NOTICE.

We have to apologize to many correspondents for the delay of their communications. We shall make room for a considerable number of them next week.

Wilson & Ogilvy, 57, Skinner Street, London.

THE
LONDON MEDICAL GAZETTE,
BEING A
WEEKLY JOURNAL
OF
Medicine and the Collateral Sciences.

FRIDAY, NOVEMBER 13, 1840.

LECTURES
ON THE
PRINCIPLES AND PRACTICE OF PHYSIC,

Delivered at King's College, London,

BY DR. WATSON.

LECTURE VIII.

Symptoms. Their uses in relation to the diagnosis, the prognosis, and the treatment of diseases. Signs, as distinguished from symptoms. Pathognomonic, commemorative, direct and indirect, symptoms. Examples of symptoms as they consist of uneasy sensations, disordered functions, or changes of sensible qualities.

WE are perpetually reading and talking about *symptoms*: and no wonder, for symptoms are the signals by which we learn that disease is present; the evidence upon which all our art proceeds. We are always, therefore, observing symptoms, analyzing them, striving to interpret their meaning, to ascertain what they signify. Without a knowledge of symptoms we can have no knowledge of the art of physic. Sagacity in penetrating the import of symptoms constitutes a great part of the skill of an able physician. We shall find it useful to take a cursory view of symptomatology, and to familiarize our thoughts with some of the cardinal symptoms themselves, before we speak of them in connection with particular diseases.

What do we mean by a symptom? *συμπτωμα*—"Something that happens concurrently with something else." Symptoms, they say, are *coincidences*, but this is merely translating the word *συμπτωματα* into English through the Latin. Symptoms are sometimes defined to be *morbid phænomena*—"any thing observed in a patient out of the course of health." But in forming our estimate of disease we must often take into account the functions that are natural: these have been said to furnish *negative* symptoms. For my own part, if I were called upon to define a symptom, I should say, "Every thing or circumstance happening in the body of a sick person, and capable of being perceived by himself or others, which can be made to assist our judgment concerning the seat or nature of his disease, its probable course and termination, or its proper treatment: every such thing or circumstance is a *symptom.*"

And it is well that you should take notice at once, that it is for the three purposes just adverted to, that we cultivate the study of symptoms, viz.

First, To ascertain the seat and the nature of the disease under which our patient is labouring: in technical language to form the *diagnosis*. I am no great friend to technical phrases where they can be avoided without inconvenience; but in some cases short terms of art save us a great deal of tiresome periphrasis and circumlocution.

A *second* object of the study of symptoms is to enable us to foresee and foretel the probable course and issue of the disease; in other words, to frame the *prognosis*.

And a *third*, and most important use of a knowledge of symptoms, is to direct our *treatment* of the disease.

I suspect that the immense importance of the first mentioned of these three objects—the diagnosis or *recognition* of disease, is not always clearly seen, either by students or practitioners of medicine. Sometimes we are obliged to prescribe for a malady, although we are in great uncertainty, or in total ignorance, in respect to its nature or situation. But this is always unsatisfactory. On the other hand, when we have ascertained where and what the disease is, we apply with much more confidence, and precision, and comfort, those rules for its relief which we have picked up by our own observation, or have been taught by others. But this is a very limited view of the importance of an exact and true diagnosis. Diagnosis forms the indispensable basis of all *advances* in physic as a practical art. There is a vulgar proverb, that the knowledge of what a disease is, is half its cure. In one sense this may sometimes be true, but in another sense it is not so. Almost all that we know concerning the proper treatment of the sick is *originally* derived from observation, *not* of the *nature of diseases*, but of the *effects of remedies*. That rhubarb will purge, and opium lull to sleep, and loss of blood occasion faintness, are truths which experience alone could suggest, and successive trials alone confirm. They are purely empirical truths. No one could guess them beforehand. No skill in the discrimination of disease has even a tendency to teach them. In some few cases, indeed, we *see* that certain *mechanical* derangements exist, which are manifestly capable of *mechanical* relief. When parts of the body are displaced, as in herniæ and dislocations; or when distension and pressure are evidently produced by accumulated fluids; the mechanical remedies are at once suggested by the physical and obvious faults. But with such exceptions, diagnosis does not, of itself, afford us *any* direct information as to the cure of diseases; but it does *this*—it defines and fixes the objects about which observation is to be exercised, and experience collected. When we can once identify a given diseased condition, we obtain the privilege of watching the behaviour of that diseased condition, again and again, under the operation of therapeutic measures; and from that time the increase of our knowledge concerning the appropriate management of that particular disease becomes progressive and sure. The term experience is obviously misapplied, and the results of all observation are vitiated, when any doubt exists about the sameness of the objects contemplated. It is mainly to this imperfection in the diagnostic part of medicine that we must attribute the uncertainty and variation, both of doctrine and practice, which have brought so much suspicion, and reproach, and ridicule, upon the science we profess. *False* experience, if I may use such a term, has greatly retarded the progress of the healing art: and *false experience* springs from *false diagnosis*. A man will tell you that he has cured a score of cases of advanced phthisis; but he has deceived himself: they were not cases of true phthisis, but simply cases of chronic inflammation, with puriform discharge, of the mucous membrane of the bronchi. He publishes an account of his success, and of his plan of treatment; and thus he deceives others also: and thus he retards the science which he fondly and conscientiously believes he is promoting. Accuracy of diagnosis, therefore, cannot be too highly estimated, or too diligently sought after. It has been wonderfully extended within the last twenty years.

The *prognosis*, or foreknowledge of the course and event of diseases, has but little connection with the promotion of medicine as a science; but it is not on that account less worthy of our attention. Both the physician and his patient find their advantage in the capability of the former to determine whether a disease be remediable—to foresee the changes that may be expected in its progress—to predict the manner in which it will terminate. Knowledge of this kind opens to us a fair and honourable source of credit and reputation; and it begets a degree of confidence towards us, which is beneficial, not merely to ourselves, but to our patients. Our influence over a sick person, and the efficacy of many of our remedial measures, are remarkably increased by the reliance he places on our skill, and by our apparent acquaintance with the nature of his complaint. It is often of material consequence, in another point of view, that the fatal character of a disease should be plainly perceived. A sick man, aware of his danger, is furnished with a motive and an opportunity for arranging his worldly affairs, in the settlement of which the future comfort and happiness of his family may be very deeply concerned; for making his will; and also for more solemn preparation for the awful change that awaits him. For these reasons medical men have, in all periods, endeavoured to read, in the phænomena presented to them by diseases, the event to which those diseases tend. To *form* an accurate opinion on this head is, however, one thing—to *divulge* it another. There is always some risk of losing, as well as of gaining credit, by strong statements or predictions of the death or the recovery of a patient. If you give an unfavourable prognosis, you have a good chance of losing your patient altogether; his friends argue very naturally, that you are not infallible, that you may be wrong, that if *you* know of no means of safety for him, some other practitioner may, and they *will* grasp at whatever straw comes near them. Do not suppose that this is merely a selfish view of the matter: it is often of much moment to the patient himself, that he should not be tempted to put his life under the charge of impostors, who will feed his hopes, and promise largely, and torture him perhaps with their discipline, and have no mercy upon his pocket. Many an instance have I known of persons dying of consumption, who, when given over by their regular attendants, have been brought to London at considerable expense, to exchange the many comforts of home for the inconveniences of a hired lodging, that they might be *cured* by that ignorant and cruel and rapacious quack, Mr. St. John Long. There are other reasons, too, why we must sometimes conceal the truth from our patients. It often happens that a person is extremely ill, and in great danger, but yet may recover if he is not informed of his peril. To tell a person in these circumstances that he is likely to die, is to destroy his *chance* of recovery. You kill him if you take away his hope of living. It must be confessed that the duty of the medical man in these cases is very painful and embarrassing: the patient and the patient's friends are urgently inquisitive to know whether there is any danger; or whether he is not yet out of danger. The rule which I have always adopted in circumstances of this distressing kind, when I see clearly that the case is hopeless of cure, is to fix as well as I can upon that person among the family or friends of the patient to whose prudence the real state of the matter may be the most safely confided. If I think that there is a possible chance of recovery, and that a knowledge of his danger by the patient would diminish that chance, of course I urge the necessity of speaking to *him* with assumed cheerfulness and confidence: if I see that the case is absolutely and inevitably mortal, either soon or at some little distance of time, I leave it to the discretion of the person with whom I communicate to disclose or conceal my opinion as he or she may think best. There are, I believe, practitioners, who make it a point, on principles of worldly policy, *never* to speak despairingly of a patient; but I cannot regard such a rule of conduct as honest, or justifiable, or consistent with one's Christian duty.

Now I wish you to observe that symptoms do not serve equally or indifferently the three several purposes that I have spoken of. The same symptom or set of symptoms may indeed at once reveal the nature of the disease, and foreshew its result, and indicate its treatment. When we have discovered what the disease is, we may want no further information to tell us how it will terminate, or how we are to prescribe for it. A man previously sound and well, shivers, then becomes hot, and afterwards sweats, and then reverts to his natural state of comfort and good health: and the same series of phænomena occur every other day. We pronounce the disease to be ague; we predict that, in this climate at least, the patient will recover; and we give him quina; all upon the strength of the same set of symptoms. But this is not necessarily the case: certain symptoms may diclose to us what the malady is, and where it is situated; other symptoms teach us whether our patient is likely to survive or not; and a still different set instruct us what is the proper method of cure to be attempted. We see a number of little pustules scattered over his skin, and we know that our patient is labouring under small-pox. His chance of recovery will be singularly different, according as the spots upon his face run together, or remain separate and distinct from each other. And we investigate the state of his pulse, and his breathing, of his bowels and his brain, before we can venture to prescribe for him. Those symptoms, or combinations of symptoms, which distinguish the place and nature of the disease, we call *signs of disease;* those which teach us what to do, we call *indications of treatment.* We speak also of prognostic *signs.* By keeping these distinct ends of the study of symptoms in mind, we shall be enabled to group them to advantage, and not to huddle confusedly together symptoms that speak, not a different language, but upon a different topic. The ancients, who knew but little of the intimate nature of diseases, but who paid great attention to symptoms, have laid down most admirable rules in respect to prognosis: which shews not only that the prognostic signs are more easily made out, in many cases, than the diagnostic, but also that they may be independent of them.

I have just spoken of *symptoms* as being *signs.* These words are not, however, exactly synonymous, although they are frequently employed as if they were so. Even those medical writers who admit a distinction between them, have not always succeeded in clearly pointing out the difference. Signs are deduced from symptoms, by arranging and comparing them, and noticing the circumstances under which they occur. Symptoms are obvious to all persons alike—to the nurse as well as to the physician: signs, for the most part, are such to medical eyes alone. Let me try to make this plainer by the help of an illustration. Symptoms may be considered as resembling so many *words.* When taken separately, or when put together at random, the words have no force or signification. Arrange them in due order, reduce them into a sentence, and they convey a meaning. The sentence is a *sign* or expression of something which is thus revealed. Symptoms become signs when their import can be interpreted.

A certain crackling sound, of which I shall have much to say hereafter, is heard (we will suppose) in some part of a patient's lung, by the ear applied outside his thorax. This sound is a symptom; any one who listens may perceive it. It is even so far a *sign,* that it denotes the unnatural presence of fluid in the lung, and the passage of air through that fluid. But the fluid may be one of several—mucus, or serum, or pus, or blood: we cannot tell by the sound alone which of these it is. But if we learn that the person in whose lung the sound is audible has been ill for a day or two only, that he has pain in his chest, cough, embarrassed breathing, and fever, we conclude that he is labouring under that serious disease, *inflammation* of the lung. The crackling sound alone could not assure us of this; nor without the addition of this sound could the pain, the laboured breathing, the cough, or the fever. Taken altogether, the symptoms constitute a *diagnostic sign*, and bespeak the existence of pneumonia.

Sometimes a symptom, or set of symptoms, becomes a sign, by its relation to what has gone before and what has followed it. To adhere to our illustration, the meaning becomes evident from the context. By comparing, at short intervals, in the supposed case of pneumonia, the extent and character of the sounds heard during respiration, we ascertain whether the disease be advancing or receding; and thus convert the sounds, or their variations from day to day, into a *prognostic sign*.

We always strive, then, to penetrate beyond the symptoms to the disease of which they are significant. But we do not always succeed in this, and when we do not, (as in the case of ague) we are driven to the necessity of regarding the combination of symptoms as the disease.

You will often hear of *pathognomonic* symptoms. A pathognomonic symptom is one which, when it occurs, settles infallibly the nature of the malady; becomes a positive *sign* or token of a particular morbid condition. But there are very few symptoms, if there be any, which, taken singly, can ever be said to be strictly pathognomonic signs. But a symptom which in itself possesses little or no value may become very significant when conjoined with others.

Much light is often thrown upon symptoms by what the French call *commemorative circumstances;* that is, by a knowledge of the previous history and condition of the patient. For example, a person may have palpitation and other marks of disordered action of the heart, and doubts may exist whether these symptoms depend or not upon organic disease of that organ. The question is often determined in the affirmative, by our learning that the patient has had one or more attacks of acute rheumatism of the joints.

There are some other general divisions of symptoms, which it is useful to attend to. Thus some symptoms are said to be *direct*, and others to be *indirect* symptoms. Direct symptoms relate to the very part which is affected; indirect symptoms are such as "declare themselves through the medium of some other parts, or through the medium of the constitution at large." There are some cases in which the direct symptoms are of much more value than the indirect; and there are other cases in which those which are indirect are the most important; and there are yet many more which require for their elucidation a knowledge of both the direct and the indirect symptoms.

Again, there are many symptoms of which we receive no information, except from the statements made by the patient himself; and there are many others of which we learn the existence by means of our own observation, by the exercise of our several senses. The relative importance of *these* varies too in different cases. Of course those symptoms which we are able to ascertain for ourselves are the most *trustworthy;* but both sorts of symptoms shed a mutual light upon each other: we should constantly be making mistakes if we relied solely upon what our patients tell us; on the other hand, the value of the information we derive from their statements is made apparent by the difficulty we are apt to experience in investigating the diseases of children; of those who are dumb; or what is much the same thing, who speak no language that we can understand.

Now, setting aside that notice of the healthy functions which is sometimes necessary in order to determine the relative value and meaning of other symptoms, and regarding those symptoms only which consist of *morbid* changes, they may all be classed under three heads: 1. Uneasy, unnatural, or impaired *sensations:* 2. Disordered or impeded *functions:* and 3. Alterations of structure or of appearance; changes of sensible qualities. When these last come within the direct cognizance of our senses, they are called, usually, *physical signs*.

Uneasy or altered sensations we can only be aware of through the testimony of the patients themselves. The symptoms belonging to the other classes fall, generally, under our own observation.

Uneasy or altered sensations comprehend a large class of morbid symptoms. By their occurrence persons sometimes become conscious that they are unwell before any other symptoms are observable. Of all the uneasy sensations pain is the most common and the most important. It is very rarely absent in one stage or another of inflammatory disorders; and it very often occurs, and is very acute too, when there is no inflammation at all. I shall have occasion, in a subsequent lecture, to lay before you the criteria between pains that accompany inflammation and pains that are independent of it. Upon the decision of that point the whole question of treatment commonly depends; and it is often a most difficult point to decide.

There are many different kinds and degrees of pain. Different kinds of morbid action are accompanied by different kinds of pain; and the same kind of morbid action, inflammation for example, produces different modifications of pain, according as it affects different parts. The pain that belongs to inflammation of the lungs differs from that which is felt in inflammation of the bowels. Bones, muscles, tendons, ligaments — the bladder, the kidney, the uterus—all modify, in a manner peculiar to themselves, the pain that is produced in them by injury or disease. Different epithets are given to the different varieties of pain—*i. e.* persons endeavour to explain how they feel, by likening their sensations to something which they have felt before, or fancy they have felt. Thus we hear of *sharp* pain—*shooting* pain—*dull* pain—*gnawing* pain—*burning* pain—*tearing* pain—and so on.

When pain is felt in a part, only when it is touched, *i. e.* when *pressure* is made upon it, it is called *tenderness:*—the part is said to be tender. This is a very important kind of pain, as we shall see hereafter. A part may be both painful and tender: or painful without being tender: or tender without being otherwise painful.

Pain often takes place, not in the part really affected by disease, but in some distant part. Inflammation of the liver or diaphragm will cause pain of the right shoulder: the mechanical irritation of a stone in the bladder produces pain at the extremity of the urethra: inflammation of the hip-joint occasions pain in the knee: disease of the heart is often attended with pain running down the left arm: many headaches result from irritation of the stomach. We call these, instances of indirect or sympathetic pain. Some of them admit of no very obvious explanation:—others have been ascribed to connections of the sentient nerves of the two parts—" especially when the part really injured is internal, and that to which the feeling is referred is external, and both derive their sentient nerves from the same larger branches." You will perceive that a due estimation of these sympathetic pains is of no small importance.

I may observe of pain in general, that it is differently felt—or at any rate differently complained of—by persons of different constitutions and temperaments. There are even, I fancy, *national* differences in this respect. I have been present, as you may believe, at a great number of surgical operations, and I have been struck with the different degrees of patience with which the same operation has been borne by Irishmen and by Scotchmen. The Irishman, speaking generally, either feels more acutely, or gives more free vent to his feelings in cries and exclamations: the Scotchman, on the contrary, most commonly preserves a resolute silence. In complaints that are attended with low spirits, and hypochondriacal symptoms, there is reason to believe that the pain spoken of often depends, in a great degree, upon the eager attention that is paid to it. The accounts given by such patients of their sufferings are always to be received with a grain of allowance; and this is often an embarrassing circumstance in practice. Patients take it ill if they do not seem to be implicitly credited; and yet if they are not convinced that much of what they suffer depends on their great attention to it, they will never get well. You will often find that they cease to feel pain—*i. e.* they forget to attend to their complaints — when their attention is otherwise strongly arrested—as by conversation, or music. I adverted to this principle in my last lecture.

Besides pain, in all its modifications, there are many other, and very interesting, uneasy sensations. *Itching* is an uneasy sensation nearly allied to pain. As severe mechanical irritation will cause pain, so a slighter degree of it will cause itching. Itching occurs in many cutaneous diseases, and it gives a name to one of them, which is emphatically called *the itch*. And the Latin word signifying the same sensation, *prurigo*, is made use of to denote other forms of disease of which itching is the most prominent symptom. It often affects some one of the natural outlets of the body; it occurs about the rectum, from the motions of little worms that nestle in the lower part of that gut. This prurigo podicis, which does not always depend on the cause just mentioned—and the prurigo pudendi in the female—are sometimes most distressing complaints; harassing the patients continually, preventing sleep, driving them from society, and requiring medical treatment. Acrid matters in the intestines will sometimes produce a kind of itching there; and the call to void the fæces is perhaps more akin to itching than to any other sensation: sometimes, indeed, it amounts to pain. The tickling often felt in the windpipe, and provoking the person to cough, appears to be of the same nature. Tingling and pricking are sensations which have also some analogy with itching.

Nausea is another uneasy sensation. It is sometimes a *direct* symptom of disease or disorder of the stomach, to which the sensation is referred. Sometimes it is a very important *indirect* symptom, taken in conjunction with others, of disease in some part at a distance from the stomach—in the kidney for example, or in the brain. The nausea which is so troublesome to pregnant women is another instance of a morbid sensation sympathetic of irritation in a distant organ.

Giddiness—vertigo—is another example of an uneasy sensation. It sometimes results from disease within the head; sometimes it is an indirect consequence of disorder of the stomach; or of mere debility and an approach to syncope.

Patients will also complain of an undefinable sensation which they usually call *sinking*—a sensation which is referred to the epigastric region. This is frequently a source of much distress to hysterical women; and it is occasionally the fore-runner of death at the close of severe diseases which have a tendency to end fatally in the way of syncope.

Many other symptoms might be mentioned which belong to this class of uneasy sensations, and for our knowledge of the existence of which we must depend upon the accounts given us by the patients themselves. Sensations of weight; and of tightness and fulness; drowsiness, tenesmus, strangury, heartburn; and various depraved conditions of the special senses. In the majority of diseases the appetite is lost or impaired; but sometimes excessive hunger accompanies and denotes disease. We sometimes form the first suspicion of the existence of diabetes from the preternatural keenness of the appetite. Thirst is a very constant and striking symptom in all febrile and inflammatory disorders; and in the disease just now mentioned, diabetes, it frequently constitutes the whole distress of which the patient is sensible. The appetite may be perverted, as well as deficient or excessive. Chlorotic girls will eat cinders, sealing wax, slate pencil, and such trash. So women who are pregnant either have or pretend to have inordinate longings for particular kinds of food—longings which are evidently fostered by encouragement. They are not, I believe, common at present in this country; and among the poor, who have not the means of gratifying them, they are less frequently heard of than in the higher classes of society.

The class of uneasy sensations you see then is a very large one; and some of the morbid feelings are of very great moment. However, there are not many diseases which consist altogether of uneasy sensations; and when we find that pain or uneasiness is complained of in any part or organ, we next proceed to enquire whether the *functions* of that part or organ are disturbed or suspended. If we discover any interruption or derangement of function, we have additional reason for concluding that the part so affected in its sensations and in its functions is actually the seat of disease. This is an enquiry which we can prosecute with much less assistance from the patient himself; and mostly with no assistance at all; and even in spite of any erroneous notions which he may have formed, and is anxious to state upon the subject. The study of disordered functions is of great practical value.

The functions of the brain and nerves—of the heart and blood-vessels—of the respiratory apparatus — and of the digestive organs—are all of vital consequence.

Some of the impeded or disordered functions which relate to the brain and nerves are in fact identical with the last class of symptoms, and consist of altered or morbid *sensations*: sensation being one of the natural functions of those parts. Depravations, for instance, of the sense of touch; numbness; the total absence of sensation, which we call anæsthesia. Symptoms of this kind do not constitute primary diseases, but they often portend or accompany very serious alterations in the brain, or in some part of the nervous system; and it is from that circumstance that they derive the great interest and importance which belongs to them. The same may be said of perverted conditions of the other senses. The sense of vision is often impaired, and in various ways and degrees, from mere dimness or imperfection of sight, to total blindness. And this total blindness may occur without any other *apparent* disease, the humours and fabric of the eye itself being in all evident respects healthy and right: it may come on, too, so gradually, and increase so slowly, as not to be discovered for a long time, by the patient himself. Mr. Day, the great blacking man, of the firm of Day and Martin, who died not long since, was almost entirely blind. He told me that he first discovered that the sight of one eye was gone, one day when he attempted to look at a distant object through a telescope: he could see nothing, and he imagined that the little brass plate which slides over the eye glass had not been withdrawn. There was, however, no such obstacle; and he too soon found that when the other eye alone was closed, he was in total darkness. This state of blindness is called amaurosis, and it may depend upon pressure made upon the retina, or upon the optic nerves, or upon the brain at the origin of those nerves. Its approach is sometimes marked by the fallacious appearance of black spots upon the objects the patient is looking at, or floating before him in the air—*muscæ volitantes*. Some of the other depravations of sight are still more extraordinary, and, except that they are not uncommon, might almost be considered fabulous. Thus persons sometimes see things around them apparently in motion, when in truth they are not so. This is, in fact, a symptom I have mentioned before—vertigo: if the patient shuts his eyes, and consequently can see nothing, he feels as if he were himself turning round, while in reality he is at rest: persons in this state fancy sometimes that the bed on which they lie is sinking rapidly down with them into some abyss. A still stranger depravation of the sense of vision is that in which a person sees only one half of an object at which he is steadily looking. One man, in passing along the street, fancied that every body he met had only one eye. The late Dr. Wollaston was subject to this optical delusion; he frequently found that only one half of the object he looked at was visible: and he wrote an ingenious paper in the Philosophical Transactions to explain this. After his death a tumor was found in his brain, interfering with the optic nerves. The celebrated Mr. Abernethy had once a temporary affection of the same kind, dependent no doubt upon some slight and transient injury of the brain. He was thrown, I believe, from his horse—at any rate he received a violent blow on his head, which stunned him; and when he had recovered a little, he was taken home in a hackney-coach. On his way he amused himself with reading the names of the trades-people placed in front of the shops, and he was greatly surprised to find that one half of each name—the last half—seemed blotted out: he described this in his lectures, in his whimsical way, by taking his own name as an example: "I could see as far as the *ne* (said he), but I could not see a bit of the *thy*."

Those very wonderful cases of spectral illusion which sometimes occur, come within the class of symptoms we are now considering: they throw a strong light upon many of the well-authenticated ghost stories—which were in fact mere examples of disease or disorder in the brain of the ghost-seers. It would be out of place to go into any detail upon this interesting subject here. You will find some excellent examples of these spectral illusions in Dr. Hibbert's book on Apparitions, and in Sir David Brewster's Natural Magic, and in Sir W. Scott's Letters on Demonology.

The sense of hearing is liable to analogous disorders. Sometimes it becomes preternaturally acute; and this is a bad symptom when it does occur. I was called a year or two ago to see a gentleman in the Temple; he had been taken ill only a few hours before, but I found him dying: the pulse was gone from his wrist, and his skin was cold, but his intellect was entire, and he complained of nothing but of the distress he felt from the loud noises that were made by those around him, in moving about or speaking, although, in fact, all noise was as much as possible avoided, and conversation was carried on in a whisper: but his hearing was painfully acute: he died the same evening; I believe of an irregular form of cholera. It is always right that patients should be protected from the irritation which might arise from this source; for that degree of noise which would not interfere with the sleep of a healthy person will often not only prevent it in a sick man, but bring on delirium, and aggravate greatly the disease under which he labours. The custom of strewing the streets with straw before the houses of those who are seriously ill is, in many cases, a very proper precautionary measure.

The opposite fault, *obtuseness* of hearing, is much more common. It often occurs in fever, and it is not thought a bad symptom: it certainly is a much less unfavourable circumstance than morbid acuteness of hearing, and it probably depends upon a disordered state of the brain which is not in itself very dangerous.

What is called *tinnitus aurium* is an instance of the depravation of the sense of hearing. It seems sometimes to result from the too strong throbbing of the arteries. It occurs in many diseases, and is not unfrequently a symptom of diseased cerebral vessels, and a precursor of apoplexy or palsy. It is sometimes in itself extremely annoying. Curious and undefinable sounds are heard by some patients—sounds like a rushing wind, like the falling of a cataract, the noise of a bell, or of a drum. A female patient of mine in the Middlesex Hospital last year, who had disease of the bones of the ear, with symptoms that threatened some implication of the brain; this patient heard a perpetual noise in her ear like the singing of a tea-kettle. I have lately been consulted by a gentleman from the country, who had no other complaint than a constant hissing, which worried him greatly, in one ear. In a case of spectral illusion related by Sir David Brewster, voices and sentences are said to have been repeatedly heard, when none were uttered.

Affections of the intellect—of what are sometimes called the internal senses, are very common, and very important, symptoms of disease. They are sometimes considered as primary diseases themselves; they very frequently accompany certain febrile diseases; and they are not uncommon in diseases that are not attended with fever. There is more or less derangement of the internal senses from the very beginning of continued fever. The power of attention is impaired. That kind and degree of mental exertion which would afford gratification and amusement when we are well, becomes laborious and irksome when we are ill; and to compel, or to urge the attention, under such circumstances, is injurious. This state is probably only the first degree of delirium, and therefore these slight approaches to derangement of the internal senses are by no means to be disregarded. It is curious that the delirium of fever is always most marked during the night: this seems to be owing to the circumstance that the erroneous notions and wandering thoughts of the patient are not corrected by external impressions made upon his his senses. You will find, conformably with the same principle, that your patient sometimes ceases to be delirious upon your visiting him: the sight of a new face rouses him for a time, but he soon relapses.

Voluntary motion is another function connected with the nervous system, and one which affords a great variety of important symptoms. Like the senses it may be excessive, or deficient, or perverted. Excess of voluntary motion is not common, nor very important. In mania patients sometimes exhibit an extraordinary degree of muscular strength; indeed, in the delirium of fever something of the same kind may be observed.

But the opposite state, that in which the power of voluntary motion is deficient, muscular debility, is exceedingly common. Debility is an original and essential part of fevers. It appears before there has been time for it to be produced by the exhaustion of disease. It is not always proportional to the other symptoms, and does not necessarily imply any great degree of danger. This sudden and early weakness has been a very striking symptom in our two recent visitations of influenza. Persons previously in apparent good health would be seized as they walked along the street, and be glad to sit down in a shop. or a carriage, and to get home and go to bed. Young and strong persons would be thus prostrated.

In some instances debility does not appear till late in the disease, of which it then forms an important prognostic symptom, and an important guide for our treatment: it shows us that there is a tendency to death by asthenia, and we have to endeavour to keep the patient alive by supporting his strength as well as we can,—this being the chief or the only indication.

Debility is occasionally the principal symptom of the whole disease—as in hemiplegia, paraplegia, or in more partial palsy, palsy of one limb, even of a finger, or of a single muscle, as of the levator palpebrarum. This, though it may seem trifling in itself, is far from being so in reality; it often forms a fragment only of a most serious disease; and from such partial symptoms of palsy we may prognosticate a more general and alarming attack. A slight degree of paralysis affecting some of the muscles of the eye will produce a squint, and consequent double vision; and this occurs not only in hydrocephalus, when it is a most significant phænomenon, but also as a prelude to more extensive palsy. General palsy is sometimes prefaced by an affection of the tongue of the same nature, producing a faultering and indistinctness of speech.

Spasm is an instance of disturbance and the power of perversion of voluntary motion. It consists in an irregular and violent contraction of muscular parts—involuntary, even when the voluntary muscles are concerned. Cramp is a familiar example of it; and we have been taught, since the cholera has made its appearance among us, to regard cramp as sometimes a very formidable symptom: not formidable in itself, but formidable in respect to the condition that gives rise to it. Tonic spasm is the principal symptom also of that frightful disease—frightful in its phænomena and in its frequent fatality—tetanus. The convulsions of epilepsy and hysteria, and the jactitation of chorea, are ordinary examples of the perversion of the function of voluntary motion. Sometimes convulsions bode great danger, sometimes none at all.

So also *tremor*, which is nearly akin to spasm, is a sign, frequently, of a morbid state of the greatest peril; and sometimes it is violent without being attended with the smallest hazard.

If we turn now to the great function of respiration, we shall find that it affords a very great number of morbid symptoms—and those of the highest importance.

Dyspnœa, difficulty of breathing, is one of the most prominent of these symptoms. It may depend upon various causes. In inflammation of the lungs and pleuræ there are several circumstances in operation to render the respiration difficult; for example, pain, which would be enough of itself; the effusion of lymph into the texture of the lung, or of serum into the cavity of the pleuræ, mechanically impeding the entrance of the air. In dyspnœa the breathing is almost always most difficult when the patient is lying on his back. One reason for this is plain. In the supine horizontal posture the action of the diaphragm is obstructed by the weight and pressure of the abdominal viscera; and the erect position obviates this. Upright breathing, *orthopnœa*, has come to be considered as a distinct modification of dyspnœa. The patient cannot lie down.

Sometimes, as in asthma, the difficulty of breathing comes on in separate paroxysms; the respiration becomes all at once loud, sonorous, and wheezing. A person who had never seen any cases of this kind would imagine that the patient was at the point of death—that it was all over with him; but the most frightful of these attacks are seldom attended with any *immediate* danger. They depend frequently upon organic disease of the lungs, heart, or aorta: sometimes they seem to be purely spasmodic: sometimes to result from transient congestion of blood in the lungs.

Cough is a violent spasmodic action. A full inspiration is taken; then the glottis is closed pretty firmly—and in expiration the air is forced suddenly out, and with it, frequently, mucus, or other matters which irritated the lungs or bronchi. It seems to be one of the efforts of nature to expel from the lungs things which ought not to be there. There are several varieties of cough: it is a symptom belonging to so many dangerous complaints—pneumonia, pulmonary consumption, and diseases of the heart—that it always demands strict attention. No one who has once heard it can ever mistake the *hooping* cough. There is also a startling obstreperous sort of cough, shattering one's ears almost, like the noise of a person coughing through a brass trumpet —which depends upon some peculiar state of the nervous system, implies no danger, and is more distressing to the bystanders than to the person who utters it. I believe you may often distinguish the cough of inflammation of the lungs from that of phthisis, and each from the cough of hysteria, by their respective sounds: but we have much better methods of distinguishing them—viz. the concurrence or the absence of certain other sounds belonging to the respiration, and ascertained by auscultation.

Sneezing is another morbid symptom, which, though it may appear trifling, is not to be overlooked. It is a very common symptom in catarrhal affections. When sneezing occurs in combination with cough, it affords a *presumption* that the cough is not phthisical. Sneezing may even happen as a primary disease, occurring in long-continued paroxysms. I have at present under my care a young lady of an hysterical disposition, whose main distress consists in violent and protracted attacks of sternutation, which have harassed her almost daily for many months. One of our bishops is subject to very inconvenient fits of this kind. He will begin to sneeze and go on sneezing incessantly for a long time together. I believe that he finds an effectual remedy for these attacks in plunging his head into cold water.

I say nothing here of those direct symptoms of pulmonary disease which are ascertained by the sense of hearing—by percussion and auscultation. I shall enter fully into that subject hereafter. A systematic account of symptoms, if this were the fitting place for it, which it is not, would require a dozen or twenty lectures. To perceive the relation of symptoms, taken one by one or in diverse combinations, to the various known forms of disease, you must have some prior knowledge of diseases. But I am obliged to suppose (however incorrect the supposition may be in respect to some among you) that you are mere beginners, and have still to learn even the rudiments of such knowledge. Different diseases may have many symptoms in common. The same symptom may bear a very different import according as it is combined with other symptoms; or connected with this or that disorder. The proper place for a comprehensive and complete review of symptoms would, therefore, be at the *end* of a course of lectures on the practice of physic. When the various forms of disease had been gone through, in reference to the symptoms belonging to them, then would be the time to take the converse aspect of the case, and to consider the long list of symptoms in reference to the diseases they denote or accompany. All that I am at present attempting is to give you some general notion of what symptoms are; to put before you, as samples, a few of the most prominent; and to shew you, even by this cursory and imperfect view of them, of how great importance it is that we should make their relations to each other and to different diseases, and their signification, diagnostic, prognostic, and therapeutic, the objects of our most diligent attention.

I might find matter for two or three lectures—if my present object would admit of them—in the symptoms that are drawn from the functions belonging to the *circulation*. Every body knows how much importance is attributed to the state of the pulse. A patient would think us careless and negligent if we did not feel his pulse; and really the information obtained by that little operation is often of the most interesting and instructive kind. But it requires practice and intelligence to appreciate that information. The qualities that we most attend to in the pulse are its frequency, its regularity, its fulness, and its force. It is necessary that we should know the number of beats which the heart habitually makes in health; for it varies much in different persons. Its average number of pulsations in a healthy adult is from 70 to 75; but there are persons who, when they are quite well have always a pulse of 80 or 90; and there are others in whom the pulse seldom rises beyond 60. If we do not inform ourselves of these peculiarities, we may fall into great mistakes. In disease the pulse may acquire a degree of frequency which is scarcely calculable; and the less so because, when it is extremely frequent, it is also extremely feeble: it will reach 150, 160, or even 200 beats in a minute. In other cases—as in apoplexy sometimes, and in some organic affections of the heart—the pulse will become extremely slow. The slowest pulse I ever felt was that of a man sixty-eight years old, who was for some time a patient of mine with diseased heart, and dropsy. His pulse was often as low as 25 in the minute. He died suddenly in his chair, and I was very desirous of examining his body, but his widow would not allow it. In the 17th volume of Duncan's Medical Commentaries, there is a case related in which the pulse was as low as nine beats in the minute. We learn a good deal in certain disorders from the variations and fluctuations of the pulse in respect to frequency—in hydrocephalus, for example, and in continued fever.

Irregularity of the pulse is another condition which is often full of meaning, and of interest. I hope, as the lectures proceed, to be able to point out the bearings of these several qualities of the pulse upon our views of disease, and especially upon its treatment. At present I must repeat that I pretend to do no more than furnish you with a few samples of the phænomena that characterise disease. Irregularity of the pulse is natural to some persons. I have a brother who enjoys very good health, and whose pulse is always extremely irregular: I have been told that when he was ill with a fever at school, it became regular. I have heard of several precisely similar cases. There are two varieties of irregular pulse—in one the motions of the artery are unequal in number and force, a few beats being from time to time more rapid and feeble than the rest: in the other variety a pulsation is from time to time entirely left out—the pulse is said to intermit. These two varieties may coincide in the same person, or they may exist independently of each other.

Irregularity of the pulse may be caused by disease within the head—by organic disease of the heart—by simple disorder of the stomach—or it may be merely the result of debility and the prelude of the entire stoppage of the heart's action from asthenia. How important must it be to ascertain and construe each of these meanings of the same symptom. It may indicate mortal disease—it may imply no danger at all: it may afford no clue to any available treatment; or it may teach us how to ward off impending dissolution.

Another most important quality of the pulse is what is called its hardness, or incompressibility. You find that you can scarcely abolish the pulsation by any degree of pressure; the blood still forces its way through the artery beneath your finger. Sometimes it is felt to strike a large portion also of the finger, and then we say that the pulse is both hard and full, or large. When it strikes a very small portion of the surface of the finger, it is compared to a thread; it is a small pulse: and if at the same time it be hard—such a pulse is often described as a wiry pulse. It requires some education of the finger to appreciate with exactness the several varieties of the pulse, even those which are practically important; for many have been mentioned by authors which are purely fanciful, or useless and unnecessary refinements.

Now this hard pulse I shall soon have to speak of again, in connexion with the treatment required in inflammation. It is one of the best warrants we have, in many cases, of the propriety of bleeding our patient. It does not occur, however, in *all* inflammations, and it may occur when there is *no* inflammation. It may depend upon hypertrophy of the left ventricle of the heart, and then it is beyond the reach of blood-letting as a remedy. It often seems to be dependent upon a morbid condition of the artery itself, brought on, as Dr. Latham has suggested, by the pernicious habit of dram-drinking. It is, however, at all times considered so much a guide to our practice, that whenever it occurs, it is very necessary that the exact cause of it should be carefully enquired into.

Before I conclude this rough review of symptoms, I must point out one or two that belong to the third class mentioned; viz. changes of sensible qualities. These include variations in the temperature of the body: in the colour of the surface, and especially of the face: the diminution or increase of bulk; the latter, when general, we call corpulence; when partial, swelling: and various other symptoms, especially those which are detected by auscultation.

Wasting, or emaciation, is sometimes the first observable symptom of disease. It occurs in complaints that are not commonly dangerous—as in dyspepsia, and in hypochondriasis, which is often connected with dyspepsia: and when it does appear it marks the reality of the disease. This wasting also happens in many fatal diseases—in phthisis pulmonalis, for example—and in dropsy, although the dropsical enlargement sometimes masks it. It accompanies many acute diseases, and is reckoned an unfavourable symptom; for it shews that the body is not properly nourished. Sometimes the emaciation is so extreme, that the integuments give way—the bones of the patient are said to come through his skin.

We have examples of symptoms that consist in changes of colour, in the flushed cheek of fever; in the pallor belonging to many diseases; in the combination of these colours presented by the red spot surrounded by paleness of the cheek so characteristic of hectic fever; in the yellowness of the skin and conjunctiva in jaundice; in the dusky hue of the countenance and the lividity of the lips noticeable whenever the due arterialization of the blood in the lungs is interfered with; and in a long catalogue of cutaneous disorders.

Let me once more remind you of the peculiar importance of accustoming yourselves to take notice of the symptoms comprised in the last two classes, and especially the last class, that you may attain to a quick perception of them. Changes of sensible qualities speak for themselves, and speak the truth. They cannot deceive us, as the verbal statements of even conscientious patients respecting their uneasy feelings might. They direct us in the choice and order of our questions: nay, they frequently spare us the necessity of putting many questions; questions which might be irksome or fatiguing to our patients, or offensive to their natural delicacy, or even hurtful by letting them know our thoughts respecting their disorders. Of the change in sensible qualities we judge by our own eyes, and ears, and fingers, and often by our noses also; and the change is sometimes, of itself, perfectly characteristic of the complaint.

Many more morbid phænomena, or symptoms, or tokens of disease, might have been mentioned; but I have said enough, I hope, to rouse your attention to the extent and the fertility of this field of study. When we next meet I shall begin to consider one of the special forms of disease to which all parts of the body are liable—a disease that meets us at every turn—I mean *inflammation*.

EXPERIMENTS

ON THE MOTIONS AND SOUNDS OF THE HEART.

BY THE LONDON COMMITTEES OF THE BRITISH ASSOCIATION FOR 1838-39, AND 1839-40.

EXPERIMENTS FOR 1839-40.

[Concluded from p. 191.]

OBS. XXIII.—August 24th. *Subject*—A dog (bull-dog terrier,) one to two years old, stunned, and chest artificially inflated *Phenomena*—Results of threading different parts of the ventricles, and at the same moment pressing the threaded parts with the finger, and pulling at them by means of the thread, shewing the mechanism of the heart's throb.—Rhythm of cardiac and aortic pulsations.—Results of introducing a tube into the cava.—Respiratory suction.—Venous regurgitation in systole.—Phenomena of the heart's action out of the body, both as to motions and sounds.

Section 1.—The heart was laid bare, and a thread was passed through the apex cordis, and a second through the parietes nearly over the mitral orifice, and traction was exerted on each string in a direction outwards and away from or vertical to the point of insertion, and the result was, that in each systole each string was felt to be pulled and rendered tense, and to become lax in diastole. At the moment of tension in each cord, a finger was placed on the point at which each cord respectively had been introduced, and the result was a double sensation, viz. first, that of traction in the cord, indicating contraction of the heart, and mutual approximation of its extremities; and, secondly, that of outward impulse in the point of the parietes under the finger, indicating, as the reporter conceived, the undulation of the blood reacting against the compressing parietes of the ventricles.

Section 2.—The attachments of the vessels, or muscular parts inserted into the roots of the arteries, especially the pulmonary artery, were observed very distinctly to approximate slightly towards the apex in each systole, and to recede from the apex in diastole.

Section 3.—A barely perceptible difference in time was detected between the systole of the left ventricle and diastole of the aorta; no distinct interval however.

Section 4.—A glass tube was introduced into the lower cava, and a column of blood obtained, which oscillated frequently, but not in accordance with the heart's motions, but so as to be attributable, the Reporter conceived, to the irregular spasmodic respiratory efforts occurring in the right side of the chest, which was still air-tight the mediastinum being still intact. The oscillations were sometimes short, and rapidly succeeded to each other, with a rhythm not differing greatly from that of the heart, but at other times were protracted through several beats of the heart, viz. an ascent continued for several seconds, successively followed by a descent in the tube of similar duration.

Section 5.—The pulsation of the veins was very distinct to the eye in systole in both the pulmonary veins and cava, but whether owing to the auricular systole exclusively was not examined into with sufficient care. This much was ascertained, that the visible venous action was a diastole coinciding with the commencement of the general action of the heart, and followed immediately by a systole. Neither diastole nor systole of vein seemed gradual, but abrupt and almost instantaneous.

Section 6.—A heavy curved knife was placed on the left ventricle, and held erect between the fingers, so as to allow motion upwards or downwards, and the result was, as in former experiments, an elevation by sudden heave upwards of the knife in systole, followed by a subsidence in diastole, with depression of the surface.

Section 7.—The heart was cut out while still beating, and continued to beat in the hand regularly with normal rhythm for two or three minutes, and notwithstanding being shifted from hand to hand amongst three observers. The first sound was distinct during the whole of the time, but less sharply defined at its commencement. It wanted likewise the jerking motion over the auriventricular openings, and the strong eccentric impulse or upward heaving in systole, and strongly marked subsidence of the ventricle in diastole. The concentric motions and attempt at general rounding and the shortening of the systole were tolerably distinct. There was no second or diastolic sound. When cut open, the columnæ carneæ were seen to act along with the parietes.

OBS. XXIV.—26th and 28th. Repeated the experiment on the contraction of the abdominal muscles, as productive of a sound resembling the systolic sound of the heart, in the presence of Dr. Edwin Harrison, Dr. Hamilton Roe, Mr. Gulliver, Mr. B. Phillips, and Dr. Robert Boyd. The instrument employed was the flexible ear-tube or stethoscope, with which only the experiment is satisfactorily practicable, on account of the strong impulse attending the contraction, and the difficulty of distinguishing the acoustic from the tactual sensations it occasions.

Section 1.—The end of the instrument was placed in contact with the abdominal parietes, and held firmly down upon the surface with the intervention of a shirt and thick flannel undervest. A strong and sudden expiratory effort was then made (in the manner described in the first Report of the London Committee), with the mouth and nostrils closed, so that a strong vibratory action, ending in firm tension of the parietal muscles, was sensible to the subject of observation (the Reporter), and likewise to the observers, and with this result, that a single loud obtuse abrupt short sound was heard, and thought by every gentleman to resemble more or less the systolic sound of the heart.

Section 2.—The same experiment was repeated, with the addition of several folds of silk handkerchief to the intervening substances; and again with a double fold of cloth and silk likewise in addition to the under clothing above named, but without any important difference of result.

Section 3.—Hard substances also were interposed above the under-clothing, viz. a common framed school slate, and small bound books of different sizes, but no important difference was observed, except with the slate, through which the sound was considered to be less distinct decidedly than in any other form in which the experiment had been tried. In all these trials pains were taken to keep the cup of the stethoscope in accurate contact all round, through the substances interposed, with the abdomen; and that was easily effected by the use, on the part of the Reporter who was the subject of experiment, of both hands at once in maintaining equal pressure. It is proper to mention that several observers agreed in stating that similar sounds, occurring to them in the cardiac region, would be referred by them to the systole of the heart without any hesitation.

CONCLUSIONS FROM BOTH SERIES OF EXPERIMENTS AND OBSERVATIONS, VIZ. THOSE OF 1838-9, AND THOSE OF 1839-40.

Motions.

1. That the order of the motions of the auricles and ventricles is by continuous succession rather than by alternation of actions. The auricles contract abruptly after the rest or pause, and the ventricles immediately after the auricles, without any distinct interval between the successive systoles; and the diastoles of the cavities follow in somewhat similar order, viz. the auricular diastole coinciding with the ventricular systole, and continuing after; and the true rest or pause of the heart being constituted by the diastoles of auricles and ventricles together, and in reality, though not in a manner sensible externally, ceasing on the recurrence of the auricular systole: and this rhythm of the motions seems to be universal, and common to warm and cold-blooded animals*.

2. That the visible systolic and diastolic motions are first perceived at the bases or fixed parts of the cavities, viz. in the auricles at the sinuses, and in the ventricles at the fundus cordis, and that the apices of the auricles and ventricles, or free parts, are brought into full action after the other parts, and only just before the supervention of the opposite and next succeeding condition of the cavities respectively, whether that condition be systole or diastole.

3. That in systole the heart is diminished in all its dimensions (except only in such regions or parts of the organs as may have been previously compressed or collapsed, during the unresisting flaccidity of the diastole), and that its long axis in particular is strikingly and invariably shortened.

4. That the normal systolic action of the auricles is energetic and almost instantaneous, and quite universal: the manifestations of contraction in the appendix perceptibly succeeding to those of contraction in the sinus, although by a very minute interval; and that the normal auricular diastole is gradual, continuous, and wholly passive, and is effected by an influx of blood from the cava progressively distending the cavity from sinus to apex, and from the termination of one systole of the cavity to the commencement of the succeeding one.

5. That the systole of the ventricles is gradual in its development, and complex in its phenomena: part of these phenomena being attributable to contraction in the muscular parietes, and part to reaction on the part of the fluids. By the muscular contraction the heart is made to compress the

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* The only exception known to the reporter, from books or observation, seems apparent rather than real, viz. an alternation of action, as noted by Lancisi, in the chick *in ovo*, and by several observers, for example, in cases of very rapid cardiac action. In such cases the diastoles have been so hurried and short (owing, no doubt, to very rapid and copious influx from the veins) that the systoles of the ventricles have been closely approximated to each other, and the intervening rest been apparently suppressed, and an apparent alternation of systole and diastole without intervening rest been produced.

blood, which resists in all directions alike, and thrusts out the previously flattened, depressed, or collapsed sides of the ventricles, and effectuates in great part that shortening of the organ, that is required to admit of closure of the auri-ventricular valves: and this reaction of the fluids mainly contributes, under certain favouring circumstances of position, &c. to cause the motion that has been described as tilting of the apex, &c. which motion is principally (the Reporter believes exclusively) a result of the elevation of the long axis of the heart in systole, caused by the assumption of a convex or globular form in the central parts of the organ, instead of the superiorly and inferiorly or laterally compressed state of the previous diastole.

With respect to diastole, it appears that the ventricular diastole or dilatation is wholly passive, exerting no influence over the venous current, or the motions of the arterial valves, and is partly effected by an influx of blood from the veins commencing at the moment of relaxation of the ventricles, and continuing until the succeeding systole, and reinforced immediately before the latter by an abrupt influx from the auricles.

6. That the pulsations of the veins are of two kinds at least in some animals; viz. both active and passive; and the latter or passive pulsations, which, on the authority of Haller, may be held to exist in all animals, are attributable to reflux from the auricles in their systole.

7. The præcordial throb or pulsation is caused, immediately, by the undulation of the blood in its resistance to sudden muscular compression in the systole of the ventricles. This reaction of the fluids is first perceived about the fundus of the ventricles, and last about the apex, towards which it seems to be propagated by a continuous undulation from the fundus with extreme rapidity. In consequence of this reaction of the blood, the heart's sides are rendered convex, instead of compressed or flattened as in diastole, and are, in the middle parts more especially, heaved outwards from the central axis abruptly and with great force. Thus on all parts of the surface of the organ an impulse is felt in systole, which is greatest there where, in addition to passive flaccidity of walls, there has been collapse in the diastole (viz. the central parts), and which is least where such collapse has previously been wanting or slight (viz. the apex). This cardiac impulse is usually perceived, in the healthy subject, over the apex only, owing to its being absorbed and neutralized over other parts of the heart by an interposed thick mass of spongy lung.

The heart does not oscillate on the aorta, or move to and fro in the chest from systole to diastole, and *vice versâ;* nor does it suffer any changes in consequence of its own efforts, and exclusively of movements of the lungs and diaphragm, excepting in its shape and size, and in the thickness and tension of its parietes, and the capacities of its cavities. The doctrine that the præcordial pulsation is caused by a blow received by the ribs, in consequence of the heart's "jumping" (Αλμα, Hippocrates) or striking against them ("pectus ferit," Harvey—Costam ictu percutit," Haller, &c. &c.) appears to be superfluous with a view to explanation of phenomena (notwithstanding the ingenious illustrations of the ancient opinion by Senac and Hunter), and to be substantially unfounded in point of fact.

8. That the arterial diastole or pulse, almost every where outside of the pericardium, perceptibly succeeds to the cardiac systole, though near the heart the interval between them is very brief, and, to unpractised observers, difficult to distinguish.

Sounds.

9. That the first sound of the heart depends partly, but in a slight degree, on the abrupt closure and transitory tension of the auri-ventricular valves, which gives to this sound much of its sharp well-defined beginning; but that the first sound is mainly attributable to cardiac muscular tension alone, and that its prolonged duration is owing in great part to the progressive character of the full systolic effort from fundus to apex; and that this sound is in no degree attributable to any blow or stroke of the heart against the ribs.

10. That the auricular systole is attended by an intrinsic sound resembling that of the ventricles, but more short, obtuse, and feeble. This auricular systolic sound is often difficult of detection, even on the naked heart, and with tolerably vigorous action of the auricles, owing to its being, to the inexperienced ear, absorbed in, or masked by, the immediately succeeding and much louder systolic ventricular sound.

11. That the sounds of friction in pericarditis may, when well marked and under ordinary circumstances, be expected to be double at least, and they may be not improbably triple or more. In its systole each cavity of the heart moves so as to cause a friction of its attached lamina in one direction against the adjacent lamina of the pericardium; and in its diastole a pericardial friction is caused by each cavity in an opposite direction; and as the auricular appendices move to and fro independently of the ventricles, the normal pericardial frictions must be, as direct observation shows them to be, quadruple, or double with the auricles, and double with the ventricles. If, therefore, those frictions were rendered sonorous by the interposition of any rough substances between the rubbing surfaces (as lymph for example), and supposing the heart's actions

sufficiently vigorous, we might, under ordinary circumstances, anticipate with confidence, a duplication of murmurs at least, one systolic and one diastolic. Now this duplication of sounds must be the principal element in the acoustic diagnosis of pericarditis, since effused lymph may be of any thickness, consistence, extent, &c. &c., and may be situate on any portion of the heart's surface between its nearest part and its furthest, and may, therefore, cause friction sounds of the most variable seat, depth, and character. But, of course, another physical means of distinction of great importance remains, viz. the comparatively equable diffusion of the sounds of pericardial friction all around the seat of attrition rather than in any one or exclusive direction.

12. That the sounds of the structurally healthy heart are much liable to modification by deviations from the normal standard in the condition of the fluids, and in the order and force and equability of action of the carneæ columnæ, and other contractile parts governing or influencing the action of the valves and the closure and opening again of the orifices of the ventricles; and this dependence of the heart's sounds on conditions material or dynamic, wholly excluding structural defect, is so considerable that the second sound may, in the normal heart, for a time be very variously modified, or masked by strange murmurs, or even apparently suppressed, in consequence of hæmorrhage, or from the introduction of poison into the veins: and the first cardiac sound, though never wholly wanting during the active existence of the heart, may still, under similar circumstances to those just referred to, present various abnormal features; may, *ex. gr.*, be as short as the second sound, or be attended or followed by anomalous murmurs, and be otherwise strikingly modified.

13. Other conclusions, more or less satisfactorily deducible, as the Reporter conceives, from the facts stated, are, that the peculiar sounds occurring in pericarditis, and attributable to pericardial frictions, are not referable only to vascular turgescence, or to abnormal dryness, &c. of the pericardium, but to lymph effused by and adhering to that membrane, or other similar obstacle to the easy and noiseless gliding over each other of the adjacent parts of the pericardium.

14. That the ventricles are of equal capacity during life, and that the inequality usually met with after death is an illusion, as explained long since by Harvey.

15. That the suction influence upon the venous circulation, attributed to inspiration by various writers, is well founded.

16. That the action of the long muscles, and more especially those of the abdominal parietes, is attended with an intrinsic sound. The notice of this fact by the Reporter has been rendered necessary in consequence of some attempts at verification, and some criticisms on an experiment of the London Committee for 1836-7, published in the last edition of Doctor Hope's excellent work on the Heart.

17. That the sounds of the heart, like the motions, are governed by the same law in all warm-blooded animals hitherto examined, and probably in all kinds whatsoever, viz. that the first sound in all animals is longer and obtuser, and the second sound shorter and sharper; that those sounds are, as in the human heart, respectively systolic and diastolic; that their causation likewise follows the same law as those of man, the first sound being mainly muscular, and the second exclusively valvular; likewise that there is the same causation and mutual relation of the cardiac and arterial pulsations.

(Signed) JOHN CLENDINNING,
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REPORT OF

PAROCHIAL LYING-IN CASES

(FOR EIGHTEEN MONTHS)

DURING 1839, AND TO THE END OF JUNE, 1840.

BY JAMES REID, M.D.
Medical Superintendent of the Parochial Infirmary of St. Giles and St. George, Bloomsbury.

[Concluded from page 222.]

(For the Medical Gazette.)

Puerperal Convulsions, followed by fatal Peritonitis.

CASE IV. Nov. 23d.—Catherine M'Carty, æt. 28, a plethoric, stout, thick-set woman, of intemperate habits, came into the Infirmary, in labour with her first child, on the 22d. The membranes had ruptured very early. The os uteri was situated obliquely, and not much dilated, the pains being slight and irregular through the day. As the bowels were constipated, a dose of ol. ricini was given, which operated well. During the morning of the 23d the os uteri, according to the midwife's account, was two inches in diameter, and very rigid; and at 8 A.M. a strong convulsion took place. 16 ounces of blood were taken from the arm, and she continued sensible during the absence of pain; but on the return of a very strong one, the convulsions were again brought on. She had about six attacks. I saw her at 11 A.M. during one of them, and took 16 ounces of blood from the arm again. She recovered after this depletion, and had no return of the convulsive paroxysms, although the pains became of a much stronger character. The os uteri seemed to dilate much more readily after the second bleeding, and the head descended gradually. The infant was born *alive* at half-past 5 P.M. The placenta came away soon afterwards.

She passed urine two hours after delivery, and the bowels were relieved.

24th.—Slept well during the night; the child being kept away from her. Complains of head-ache; the nurse imprudently gave her porter, on her asking for it.

Cold lotion to the temples. Mist. Aper.

25th.—Complained in the morning of severe pain in the abdomen, but not preceded by any shivering. 16 ounces of blood were taken from the arm, 12 leeches applied to the abdomen, hot fomentations, and poultices. Great sickness continued through the day. Collapse came on, and she died in the night.

Post mortem examination 27 hours after death.—Abdomen very tumid, and decomposition commencing. On making an incision into the abdomen, a great quantity of turbid fluid, of a brown pinkish colour escaped, with flakes of lymph, and pus-like matter floating in it. The great omentum presented a strong scarlet hue, owing to the highly-injected vessels in it. The small intestines were of a pink colour in most parts, with bright scarlet spots and striæ; in other places they were of a dark red colour. This appearance was chiefly on the sides of the intestines, but not on the anterior part. The large intestines were not much affected. Liver much diseased, presenting the nutmeg appearance so frequently observed in those of intemperate habits. Spleen much enlarged and softened. The uterus was much more healthy in its appearance than we expected, shewing very slight signs of previous inflammation: this, however, is not unusual after puerperal peritonitis. The signs of previous inflammatory action seemed to be confined to the peritoneum.

CASE V. Nov. 22d.—Jane North, æt. 27, first child, of delicate constitution, was delivered, after a favourable time, of a male child, which died on the 24th. In the night of the 25th the patient complained of severe headache, for which the nurse had merely applied cold lotion.

On the 26th there was pain in the abdomen, but no shivering; the lochial discharge was stopped, as well as the secretion of milk; bowels confined. She was ordered fomentations and poultices to the abdomen, and a mild aperient draught.

27th.—I saw her for the first time. She was sitting up in bed combing her hair, and in moving apparently suffered no pain. Her manner was irritable, and the expression of countenance rather unusual and wild. She answered questions clearly, and made no complaints. There seemed to be present a predisposition to puerperal mania rather than to peritonitis. On pressing the abdomen firmly she did not complain of much pain, but I found that in the morning slight pressure alone had been sufficient to cause it.

Hirud. xij. fotus. catapl.

28th.—Pain more severe, but the patient has been sitting up several times.

Rep. Hirud.; Cal. gr. ij., Opii, gr. ¼, omni 6 hor.

28th.—Restless. On pressing the abdomen, not much indication of pain. This seems to vary, however.—Continue the pills, &c.

30th.—Found the patient sitting up: she had a wild expression of countenance, but spoke collectedly. Complains of sickness.

Mist. Effervesc.; Morph. Ac. gr. ¼. Continue the pills.

Dec. 1st.—For the first time she cannot lie on the right side. The pain is now great on pressure; complains of intense thirst; no headache; wandering in ideas; pulse 160, weak and fluttering; bowels open; urine free. Collapse approaching.

Died on the 2d.

Autopsy 48 hours after death.—Omentum presented a dark purple colour, its vessels being very turgid. A considerable quantity of straw-coloured fluid escaped from the abdomen, containing large flakes of lymph. The cavity of the pelvis was filled by a copious deposition of it, mixed with a yellow purulent matter. Intestines of a pinkish hue, with marks of inflammatory action on many points: they were not of that vivid colour which was so apparent in M'Carthy's case, but more diffused. Large quantities of pus-like matter and lymph were deposited on every part of them. —Uterus. Peritoneal coat inflamed; vivid red lines and patches on different parts, and this appearance extended to the ovaries and fallopian tubes. The peritoneum generally was inflamed.

After the foregoing cases, the lying-in ward in which they had occurred was cleaned, white-washed, and ventilated. The following case was attended in a distant part of the house, but by an individnal who had examined one of the previous cases.

Case VI.—Betsy Donovan, æt. 25. Third child, delivered on Dec. 3, duration of labour 30 hours; the after-pains strong.

6th.—Seized with violent pain in the middle of the day; abdomen very tense; pulse quick, hard, and small; tongue clean; complains of much pain in the temples, and in abdomen on pressure; no shivering; milk and lochial discharge continuing.

> Hirud. xiv. abdom.; Catapl. Lini; M. Febrif.: Cal. gr. ij., Opii, gr. ¼.

These remedies relieved her for a time, but at 8 P.M. the pulse had risen, and the pain was nore diffused and severe.

> Venæsect. ad ℥xvj.

Great relief followed the bleeding, and she slept tolerably well.

7th.—Pain not so severe as yesterday, but if she moves it is much increased. Lies on her back most easily; no headache, but is very thirsty: abdomen is much distended, pain principally about the umbilicus; urine passes freely; bowels open; cold feet; tongue clean; pulse 100, but not full.

> Hirud. xxiv. abdom.; Cataplasm; Rep. Pil. Cal. et Opii; hot bottle to feet. Mor. gr. ¼ nocte.

8th.—Much relieved. Slept a great deal during the night; no headache; can lie on either side. Pulse soft and natural; tongue clean.

The patient gradually improved after this.

Peritonitis, followed by Puerperal Mania.

Case VII.—The following case was the only one which occurred amongst the out-patients, and affords strong evidence of contagion through the medium of a third party. It happened that, on an emergency, the same individual who had attended Donovan, and conveyed, most likely, the contagion to her (as she was at a distant part of the house), likewise officiated in this case, and the same result followed.

Dec. 9th, 1839.—Mrs. Eld, æt. 35, was delivered at 12 P.M. of her ninth child, after a labour of eight hours. In the evening she was attacked with flooding, which, after the loss of a considerable quantity of blood, was arrested.

On the 10th a dose of castor oil was administered.

12th.—When visited was going on very well, but at 9 P.M. had a severe rigor, followed by intense heat.

13th.—Complains of pains in the head and abdomen; the latter is tender on pressure at every part; countenance anxious, and rather pallid; skin hot and dry; pulse 144, hard, strong, and incompressible; bowels not relieved; tongue covered with a thick white fur; complains of great thirst.

> V. S. ad ℥xxiv. Cal. gr. ij.; Opii, gr. ¼, omni 4 hor. Mist. Febrifug. Fotus et Catapl.

The blood was not buffed, but slightly cupped. She was relieved, and the improvement continued till the 15th, when, on the return of pain, she was again bled to ℥xx., and mercurial ointment was applied to the abdomen.

17th.—Salivation; pulse moderate; dejections natural, and pain in abdomen felt only on pressure.—Omit the pills.

18th.—Slight fur on the middle of the tongue only; pain in the left iliac region; irritability of bladder.

> Mist. Diaphor. c. Sod. Sesquicarb.

Again improved slowly till the 23d, when she had a relapse, with increase of fever.

> V.S. ad ℥xvj.; Ol. Ricini; rep. M. c. Sod.

26th.—Much better, but ptyalism has continued since the 17th.

27th.—Doing well; ptyalism has ceased; no pain in abdomen; appetite is good. Better in every respect.

28th.—At 6 A.M. attacked suddenly with mania: violent and noisy; does not recognize her friends, but only her medical attendant.

Morph. Acet. gr. ½.

The head was shaved, cold applications kept to it, and a blister applied to the nape of the neck.

Jan. 1st, 1840.—Ulceration of gums and tongue; monomania now only; on all points but one, rational. Tonics and sedatives were administered, but the general health began to give way; and although wine, stout, jellies, &c. were given, a slough formed on the sacrum on the 13th, which separated on the 18th. She gradually sank, and died on the 23d.

This case was under the immediate charge of Mr. Wells, and I attended occasionally only with him. He informs me that the patient had to contend throughout her illness with the depressing effects produced by anticipation of a fatal termination to the labour. This originated from the fact of her mother having died at the same age, and after having borne the same number of children.

After the lying-in ward had been thoroughly cleaned out, the beds changed, &c., the patient, Donovan, by some mismanagement, was removed into it during her convalescence, and after new patients had been admitted and confined. Most probably this circumstance gave rise to the following cases:—

Case VIII.—Emma Keene, æt. 22, delivered of her second child on Dec. 11th, after a lingering labour of fifty-three hours, owing to slight deformity at the brim of pelvis. She had, as I found afterwards, from the midwife, complained of pain in the abdomen on the 13th, but this was relieved by a dose of castor oil.

On the evening of the 14th she was violently sick, but did not complain of pain in the abdomen or head, according to the midwife's account. No shivering

15th.—Vomiting throughout the day of a green bilious matter. Mr. Burgess, the apothecary to the Infirmary, saw her, and ordered an emetic, followed by calomel and opium.

16th.—I was sent for to see the patient to-day for the first time. The sickness was not so constant, but the same green fluid was discharged from the stomach in large quantities. Lochial discharge nearly disappeared. No secretion of milk. Abdomen swollen, but not much pain on pressure, except in the regions of the uterus and liver; the latter was only felt when the pressure was strong. Tongue brown and dry; pulse 120; skin hot; no headache, but her manner was rather flighty; spirits depressed; bowels relieved twice to-day; the evacuations of a green watery character.

Venæsect. ad ℥xvj. Enema. Vesic. reg. hepat. Cal. gr. ij.; Opii. gr. j. omni 4 hor.; Cataplasm.

17th.—Blood highly buffed; sickness relieved somewhat; tongue looks moist; quick pulse; hot skin; pain in abdomen still on pressure; cerebral functions disturbed.

Lochial discharge reappeared slightly last night; urine has passed involuntarily; countenance anxious, and sunk; great thirst.

Hirud. xxiv. abdom. Blister to be dressed with Ung. Hydr. Continue the Calomel and Opium.

18th.—Symptoms much the same.

19th.—Collapse; respiration laborious; wheezing and cough; pulse small and weak. She does not complain of pain. Died at 2 P.M.

Post Mortem. — 21st. Abdominal parietes covered by much adipose matter. Milk oozing from the breasts.

Omentum very much inflamed, and strongly adherent to intestines.

Intestines.—Adhering at numerous points to each other, and covered by a large quantity of flaky lymph and purulent matter; highly inflamed, as well as the peritoneum generally; the vessels injected, and of a scarlet hue, the peritoneal covering of the uterus, as well as of its appendages, bearing more apparent marks of inflammation than in other cases. Very small quantity of serum, however, in the abdominal cavity, in comparison with them. Dark matter oozing from uterus into vagina.

Case IX.—Catherine Donovan, æt. 23, first child, after a labour of thirty-six hours, confined on Dec. 11th, at 8 P.M. On the 18th complained of severe headache and pain in the abdomen, but the latter not increased much on pressure; no shivering; pulse full, and 140. Lochial discharge and the milk likewise free; bowels have been relieved.

Venæsect. ad ℥xiv.; Cataplasm Pil. Cal. c. Opio.

19th.—Blood not cupped or buffed, but serum very opaque; pain relieved.

By the continued use of cataplasms for a day or two, and the exhibition of mild aperients, this patient had no return of her symptoms.

Case X. — Julia Collins, æt. 20, second child, confined on Dec. 17th, after twenty-four hours' labour. On the night of the 18th had a severe rigor, which lasted for four or five minutes; pulse 130; hot skin, tongue white, and covered with thick fur; no headache; bowels have been relieved. Lies on her back. Pain in abdomen.

Venæs. ad ℥xx.; Cal. gr. vj.; Opii, gr. iss. statim. Catapl.

19th.—Can now lie on her right side; no pain on pressing the abdomen; slept during the night; no sickness. Blood which was taken is not cupped or buffed; skin still hot; pulse 130.

Hirud. xxiv. abdom. Cal. gr. ij.; Opii, gr. ss. omni 4 hor.

At 9 P.M. feels easy, but complains of a violent craving for food; tongue cleaner; pulse softer and more slow; skin cool; no pain on pressing the abdomen.

20th.—At 7 A.M., complained of pain again in the hypogastric region; pulse 140 and vibrating; tongue dry; eyes rather sunk. Says that the pain is very severe occasionally.

V. S. ad ℥xxiv.; Ung. Hydrarg. femoribus fric. Hirud. xxiv. hypogast. Rep. Pil. Cal. c. Opio.; Morph. Acet. gr. ¼ statim. Vesic. abdom. post hirud.

2 P.M.—The blood was highly buffed, and very firm, with the cup-like form; no relief from pain; skin moist, but pulse 136; tongue white and furred; can lie on the left side, but not on the right; cough and difficult respiration.

V. S. ad ℥xvj. Blood slightly buffed.

21st.—Report last night favourable: pulse soft and 100; felt comfortable; slight pain only on pressure; could lie on the right side; tongue more moist; bowels acted several times.

Mr. Wells gave her half a grain of Morph. Ac.

Slept well during the night. Milk has reappeared. Does not feel so well this morning; pain increased; pulse 144; thirst.

V. S. ad ℥xvj.

1. P.M. Only ℥iv. of blood could be obtained. Pain increased; skin hot; no headache; complains of sudden shooting sensations in abdomen like cramps; great appetite. Urine free; bowels not relaxed; not so much lochial discharge; pulse not hard, but 164; not so thirsty; gums not affected by the mercury.

The small quantity of blood taken this morning very much buffed.

Cal. gr. ij.; Antim. potass. tart. gr. 1-16th; Opii gr. ss. omni bihor.

6 P.M. Sickness at first after the pills, but it has ceased; pulse hard, full, and 140.

V. S. ad ℥xii.

11 P.M. Felt easier; could lie on left side. Blood last taken highly cupped and buffed; pulse maintaining its frequency; slept for some time.

22nd.—Collapse came on during the night, and she died at 8 A.M. She was quite sensible, and to the last complained of the craving appetite, principally for bread.

Post-Mortem.—23d. Not much serum effused into the cavity of the abdomen; no large flakes of lymph, as in the other cases.

Peritoneum.—Generally only slightly inflamed.

Intestines.—Inflamed in patches: not so generally as in the other cases. The ascending colon adherent by bands to the uterus.

Uterus remaining much enlarged. The peritoneal coat of both ovaries and fallopian tubes, together with the broad ligaments, highly inflamed. The uterus itself, at the junction of the tubes, intensely so. Patches of a dark and livid colour over its anterior surface. Dark matter oozing into the vagina, as in Keene's case.

The midwife who had attended the cases had leave to go out of town for a fortnight. The lying-in ward in which they occurred was again shut up for a month. During this time it was well cleaned, painted, whitewashed, and ventilated. The beds and bedsteads were changed, and the chloride of lime was freely used. Patients were again admitted into it on January 27th, 1840.

Case XI. — Killick, æt. 25 — first child—confined on the 27th of January, after a labour of 16 hours, at 5 A.M.

On the 29th she complained of pain in the right hypochondriac region: this was accompanied by slight headache; the pulse was quick and rather hard through the day. Mr. Wells ordered leeches to the abdomen, and the application of a large linseed-meal poultice.

> Mist. Febrif. Efferves. and Calomel combined with Colocynth.

I first saw her on the 30th, at 11 A.M. Pulse full, but not hard; tongue furred and dry; headache. She can bear pressure on the right side, which she was unable to do, I understand, yesterday. There is acute pain now at the epigastric and uterine regions. No shivering, sickness, or thirst. Urine scanty, and likewise the lacteal secretion. She can lie only on her back; not on either side. Lochial discharge irregular; bowels opened freely.

The patient was now removed to another ward.

> Twenty-four leeches applied to uterine region. Catapl. Pil. Hydr. gr. v. Opii; gr.¼. M. 4ta. hor. omni.

11 P.M. Much easier; pain less; pulse soft; skin cool.

31st.—Pulse more frequent, but not hard; skin warm, and not harsh; tongue very red, but clean at the edges; pain much less in the hypochondriac region, but still remains somewhat in the uterine. Bowels relieved; motions liquid and dark. Lochial discharge scanty; more thirsty than yesterday.

> Hirud. 24. Cont. remed. alt. Inject. tepid. vagin.

In the afternoon the pain had become more severe; pulse full and 100; tongue dry and brown; headache.

> Lotio. Refrig. capiti. Mist. Febrif.

8 P.M. Pulse 100, but less full; head easier; bowels relaxed; pain in abdomen less.

Feb. 1st.—Has slept only for a short time during night; pain slight, but the abdomen much distended; head free from pain; tongue very dry; its edges bright red.

2nd.—Abdomen less tense and painful; bowels relaxed; pulse 96 and soft; tongue more moist and clean. Starts in her sleep.

3d.—Abdomen flaccid, and without pain; slept tolerably well during the night; bowels less relaxed; gums tender. Discontinue the pills.

4.—Slept well; no pain; tongue clean; pulse soft and natural. After this she went on favourably.

Owing to the symptoms presented by the foregoing case, the lying-in ward was again unoccupied for five months, and every precaution used to purify it. At the end of this period it was re-opened, and I am happy to say that we have had no return of this formidable disease.

10, Bloomsbury Square,
August 26th, 1840.

ON THE POSITION OF THE AFTERBIRTH IN THE WOMB,

AND ON THE MANNER OF ASCERTAINING IT BY INSPECTION OF THE SECUNDINES.

By Hugh Carmichael, M.R.C.I.
One of the Surgeons of the Coombe Lying-in Hospital, Dublin.

To the Editor of the Medical Gazette.

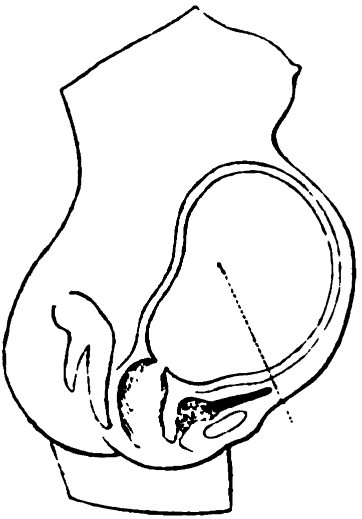
Sir,

In the number of your journal for the 2d of October, you were pleased to publish some observations of mine upon the above subject; and in that communication I stated that, with your permission, I should on another occasion show that the membranes which envelop the child in the womb, and line its internal surface, retain certain marks upon them, when expelled, corresponding with the part of it each portion of them was applied to; whereby may be ascertained which was in conjunction with the anterior wall, and which with the posterior, and thus enable us to discover what part of the womb the afterbirth was affixed to, which is known to be firmly implanted upon them.

For the purpose of being better understood, I shall beg leave to repeat here what has been stated by me on a former occasion:—The child *in utero* is enveloped in a shut sac or cyst of membranes; in order to escape from which, or get birth, it is obvious that an aperture must be made in it by what is termed the presenting part; and it is equally obvious that this aperture must be in the part of the membranes which lies over the mouth of the womb. By observing, therefore, the position of the afterbirth relatively with this opening, after the secundines are delivered, we can at once determine how far from the mouth of the uterus it had been. This alone, however, would be insufficient for the purpose of our present subject. We must go farther, and ascertain where in the vicinity of the outlet of the womb it lay, whether anteriorly, posteriorly, or laterally; and I think I shall be able to shew that this material point can be decided by attentively considering the membranes.

In order to this I must beg attention to the annexed plate,. a facsimile of Cloquet's 322d plate, small edition, representing a vertical section of the womb, laterally, so far as the womb itself is concerned, at the full period; Hunter's second plate will likewise serve the same purpose.

FIG. 1.



From this plate it appears that the posterior wall is then straight, or comparatively so; while the anterior one, and the fundus, is very much concave. Hence it must be obvious that the membranes, which are moulded upon the internal surface of the organ, and are, consequently, shaped according to the part of it they lined, take on the same configuration as these two opposite walls, so that the part of them which lay on the posterior one is flat, while that on the anterior is prominent and concave; and further, that they can only assume a smooth uniform surface while in the shape or form so imparted to them, and must become irregular in this respect when not sustained in that shape, or on any attempt to give them other than it.

For example, as regards the anterior layer, that lined the anterior wall, and therefore concave: so long as this part of them is maintained perfectly distended, or in its natural concave form, so long will the surface there be smooth and uniform: if, however, it lose the support which keeps it in that form, its soft and pliant texture will yield and drop inwards when it is most concave or prominent, assuming there a hollow cup-like shape; and if this part be made tense by extending it in any direction, it will be thrown into longitudinal folds in the direction the extension is made. On the contrary, the part of them which lined the flat posterior wall at once demonstrates a flat configuration upon examination, shewing its natural flat form, taking on a smooth and uniform surface when in that form, and which can only be imparted to the anterior portion of them by throwing them into the distended position. These facts are, I consider, so obvious, that I do not think it necessary to dwell further upon them.

Bearing them in mind, then, let the placenta, with the membranes carefully delivered, so that the latter may, as much as possible, be preserved unbroken, be laid upon a table with its maternal surface downwards: (for this purpose, inasmuch as the membranes are born inverted, of course it is first to be repassed through the opening in them, so that their external surface may be external in the examination). Let the different parts of the membranes be then made successively tight or tense by pulling at the edge of the aperture in them consecutively all round that opening, when it will be found that the appearances above detailed will ensue. Where they are shortest, no matter whether, in the language of captiousness, they be there five inches from the placenta, or but two and a half, they admit of being made smooth and level on their surface by simply extending them. When, however, we come to examine them where they are longest, on distending them here by pulling at their corresponding part of the opening, a different result follows; the membranes sink or dip in the centre, forming a sloping oblong hollow, which is deepest towards the placenta, but gradually lessens or shallows as it recedes from that to the part of the aperture it is pulled from, and if the tension be increased so as to fully extend the surface here, it is thrown into oblong folds, but cannot be thus made to take on the smooth uniformity of the short part of them.

The evidence afforded by these facts, I think, is obvious. It is clear that where the membranes are shortest, from the fact of their assuming a flat uniform surface under the above examination, that they there lined a part of the womb, having a similar description of form, the posterior part of it; and that the reason why they dip or hollow in an oblong form and in folds when they are longest, is in consequence of their having there lined a concave surface—the anterior wall. The greatest depth of this hollowing which is nearest the superior border of the placenta is obviously the part where the fundus lay, and the remainder of it, shallowing gradually off as it approaches the opening in them, represents their position on the less distended anterior surface.

As the placenta, for the reasons I have elsewhere stated, and which I shall presently revert to, generally must lie *laterally* posterior, the part of the dip which points out the lining of the fundus is usually to be found to the right or left of it as it lies transversely before us; and where the membranes were but little broken, so that we could ascertain the axis of the cyst by referring to the breach in them, we have, at the Coombe Hospital, thus sometimes been able to declare in which iliac region the souffle must have existed before delivery: it is almost needless to say, however, that this could only be effected in very favourable conditions of the secundines.

The testimony derived from thus inspecting the membranes will receive additional support from the following fact. While keeping them on the tension with one hand in the way stated, let pressure be made on them from within with the fingers of the other, and we shall find that where they are longest, and dip or cup as above, they at once yield to the pressure, and bulge out into the distended form they possessed within the womb; the facility of so distinguishing them being greatest at the part nearest the placenta, the part that lined the fundus, and gradually lessening as it approaches the aperture where they lay within the less prominent part of the front of the womb; whereas, where they are shortest and flat, they resist this pressure, do not swell out, thereby evidently showing this flat shape, corresponding to the posterior part of the womb, to be there their natural configuration.

I believe I need not occupy much time in pointing out the information these facts will give us as to the part of the womb the afterbirth was affixed to. The membranes, having it firmly implanted on them, are generally delivered, or come away unbroken, except as to the aperture above spoken of; its distance from this aperture at once demonstrates its relative position from the mouth of the womb, and by the means here stated being enabled to ascertain the part of the membranes that lined the anterior from that which lined the posterior wall, we can, by observing on which of them it is affixed, or how relatively with regard to the anterior layer, easily and satisfactorily decide whether it was anterior, posterior, or lateral.

It was according to this rule that its position was noted in several hundred instances at the Coombe Lying-in Hospital, Dublin, when it was found to have been posteriorly and laterally placed, at the same time low in that position, in at least ninety-six or ninety-seven times in the hundred. In my paper upon the placenta I stated this manner of determining its uterine position, only in shorter, but as it appears to me, equally intelligible terms. After observing that the mode of examining the membranes, as pointed out by some of the French authors, would enable us only to determine how far from the fundus the afterbirth lay, I continue: "But by introducing the hand into the opening, we get it into a pouch formed by the membranes, and then by running the fingers along their inside, *opposite* to where they are attached to the placenta, we are at once enabled to perceive by their peculiar appearace *there*, that at *that part* they lined the *anterior*, distended, and concave portion of the womb, and thus consequently fix the back part of it to be the place where the placenta was attached."—*Dublin Medical Journal*, January 1839, p. 463.

This passage I consider could scarcely be misunderstood; nevertheless it appears it was; for in one of the reviews which appeared in the Dublin Journal against me, it is stated that I offered no proof whatever for assuming the position of the placenta to be as I stated; suggested nothing to enable us to distinguish the anterior from the posterior layer of the membranes: the identical thing which I submit the quotation here given went to. In that reply to my paper the writer observes—"Thus am I able to distinguish the anterior from the posterior part (of the membranes) when removed for examination, a point which I shall afterwards show Mr. Carmichael must have neglected."—*Dublin Journal*, March 1840, p. 20.

And again: "Mr. Carmichael has fallen into a great error in the deductions which he has drawn from their inspection (the membranes). The mistake he has committed must, I suppose, have arisen from neglecting to distinguish the edges of the placenta one from the other, and consequently imagining, that when a short membrane was found at any part, it indicated the mass to have been on the posterior wall. I do not know how else it can be accounted for."—*Ibid.* note, p. 82. I shall make no comment on this mode of criticising.

The result of our investigation, conducted at the Coombe Hospital on the plan here explained, has agreed in every respect with that of Naegele, as far as could be determined by him from stethoscopic inquiry only; the position, with the few exceptions mentioned, has been laterally and posteriorly; sometimes more so, and sometimes less; the inferior edge of the mass extending usually low down. When, however, it is higher up, so that four or five inches of membranes lie below its lower edge, where they are shortest, a better opportunity is then afforded of examining their configuration at that part, so as to determine them there to be flat and level, corresponding to the posterior part of the womb, than when they were but one or two inches.

As I have stated in my original paper upon this subject that I found the placenta generally on the *posterior* wall, it might from thence be supposed I thereby meant the back of the womb directly; that I meant the expression, however, in the signification given in this communication, namely *laterally* and posteriorly, may be collected from the following passage in that paper.

After observing that the ovum is implanted on the womb near the uterine orifice of the Fallopian tube it traversed, and that the uterus expands to a certain extent at the posterior part of it between the tubes, I continue: "the necessary consequence of this (expansion) is, that in the separation of the tubes from the middle line, the one which gave transmission to the ovum must, to a certain extent, carry it and its placenta along with it, and thus give rise to the fact that the souffle is generally audible in one groin and not in the other."—*Dublin Journal*, January 1839, p. 461.

I have also stated the tubes, one of which I take to be about the centre of the placental attachment generally, to be at the full period laterally posterior, which is a further illustration of my meaning.

The explanation I have ventured to offer as to how the placenta apparently sinks upon the side of the uterus from its first position as pregnancy advances is, that the anterior wall chiefly supplies the increase of the latter organ. I argued that this increase could not take place by all parts of the uterus equally contributing thereto—anterior, posterior, and lateral; for in that case I contended that the part of it which was the fundus on the formation of the placenta, would continue so all through gestation, be the fundus at birth enlarged, and, therefore, that the placenta, which is first formed there, would, at parturition, be found there, and consequently the membranes shew it implanted on them exactly opposite their aperture, or nearly so; whereas, according to the testimony given by the membranes in this respect, and which is certainly indisputable, it is with a very few exceptions indeed found at a very considerable depth on the side of the womb. In the hundred cases investigated in the Brittain Street Hospital, in Dublin, the consideration of which formed the subject of my last communication, the lower edge of the mass is reported in the table of statistics detailing them, to have been within two inches and a half of the aperture in the membranes in sixty-eight instances, in many of which it was only one and a half, or half an inch removed from it, and three inches in thirteen others, making in all eighty-one out of the hundred, where it apparently shifted from its original position to such a depth on the side of the womb.* In either of these quantities, but particularly the former, this sinking of it as pregnancy advanced must be admitted to have been very considerable indeed. I care not on what side of it the mass was attached, anterior or posterior; if the uterus increased by all parts equally contributing thereto, the fundus rising up uniformly, such a displacement, I contend, could not have occurred, such an apparent sinking towards the os. The fact can only be explained in the way I have suggested, viz. that the side of the womb opposite that to which the placenta is attached must have yielded more than others, and so have furnished a greater proportion to the enlarging of it: how otherwise can it be accounted for? Further, I would insist, if there were no other reason for concluding this table of statistics to be wrong in the evidence it gives with respect to the placenta being found as much on one side of the womb as the other, (see Dublin Medical Journal, March 1840,) it is what may be found admitted in it as to the very low position of it at the full period. The uterine orifice of the fallopian tube, close to which the placenta is first formed, is at or near the fundus when that formation begins; the placental consequently must be there when it is first formed. At the close of gestation the mass is so low on the side as to be nearly seventy times in the hundred within two inches and a half of the aperture of the membranes. If this sinking of it results from the side of the womb opposite that to which it is found expanding more than the placenta side, and I think it would be difficult otherwise to account for it, and that the evidence this table gives us be correct, namely, that the placenta was found, thus low, as much on one side as the other, it must follow, as a matter of course, that at one time one part of the womb will yield and expand in this way, and at one time another; which I take to be very improbable indeed. I admit the table is perfectly correct so far as relates to the low situation of the afterbirth when parturition arrives, but if any expansion go on in the womb in the way I contend, it must be uniform and regular, and also effected by the operation of some cause, and I think the explanation given in this journal, as to how that can take place on the anterior wall, is not only sufficiently explanatory, but nearly proves it must there occur. I allude to the effect of pressure from the growing child *there*, loosening out its texture, and so preparing it for that purpose.

I have further stated in my paper that if the expansion be effected in the way alluded to, the contractions must take place in a corresponding retrograde direction, so that they likewise shall chiefly go on on the anterior wall. According to this view the fundus before the birth will not be the fundus after the birth; it will then have changed its position, and some other part of the organ occupy its place. I shall conclude these remarks, then, by detailing a matter which bears so much on this point, as to strengthen, I consider, the opinion I have given respecting it, in a very considerable degree.

On the appearance in the Dublin Medical Journal of the table of statistics so often spoken of, the secundines were all carefully delivered and examined at the Coombe Lying-in Hospital, with a view to the noting of the placenta-uterine position with the greatest possible accuracy, and in every instance we found it to have been low on the posterior wall; at least very much removed from the fundus. Pending our proceedings a female died, and an examination of the body after death took place, in which, as may be supposed, the uterus was attentively looked to, when the mark of the placenta was *at* the fundus.

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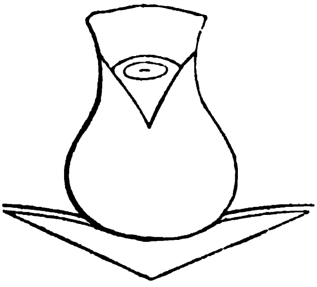
* Of the remaining nineteen, three are reported to have had the placenta at the fundus, (according to Naegele the fundal position occurs but once in the hundred); eleven within four inches of the aperture in the membranes; one within five inches of it; one within six, and in the other three the membranes were so torn that its position in this respect could not be determined. I submit, therefore, that so far as could be ascertained by observation on the membranes made in these hundred cases, with the exception of five, they were all low on the side of the womb. I have asked how can it arrive at this low position if it be first formed at the uterine opening of the fallopian tubes at the second mouth, unless in the way I suggest? One of these reviews upon my opinions declares the explanation is very easy; it states this occurs *when* the decidua covering these openings yields morbidly before the ovum, and does not keep it up in its proper and natural position. Can such departures, however, from the intent of nature, take place in a proportion of eighty or ninety times out of the hundred? How is this explanation proved, or how has it been discovered?

Now there could be no question but that every placenta delivered in the hospital had been subjected to examination, and among them that which came from this woman. There can, therefore, be no doubt but that in her case its place in utero was *removed* from the fundus; yet examination of the womb itself after death would lead to the supposition that it had been *at* the fundus. To what, then, are we to attribute this discrepancy in the testimony of the two? I think that of the secundines could not be erroneous. In my opinion there is but one way of accounting for it. The contractions of the womb do not take place from the fundus. The fundus does not urge the uterine contents towards the os; these contractions take place in a manner which changes somehow the relative position of the uterine parietes, so that what was somewhere on the side before labour, will be on the fundus after it, and in the case under consideration certainly that somewhere had been on the posterior wall.

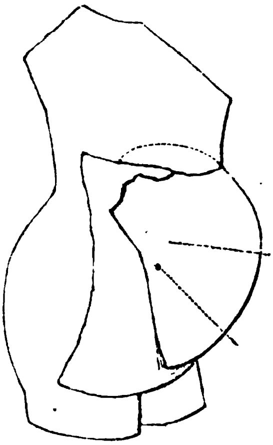
In addition to the plate referred to in the foregoing part of this paper, I shall beg to refer here to two more; the first, representing the position of the fallopian tubes, before the womb is enlarged by gestation; and the second, from Hunter's 2d, and Cloquet's 319, plate (small edition) their position at its close: to the latter I would particularly beg attention. I submit it points out their situation then to be "laterally posterior." In the page of explanation adjoining it in Cloquet's work, they are described as "looking or pointing backwards" to the iliac fossæ. "La trompe de Fallope droit, se portant *en arriere*, vers la face interne de l'os iliaque."

Fig. 2.



How, I would ask, then, can they arrive at that low situation from where the first plate represents them to have been, unless in the way I have described? There is no doubt one mode might for an instant suggest itself, but which a moment's consideration will, I think, shew to be quite untenable, namely, that the fundus expanded between the tubes more than elsewhere, rose up there more than in other parts, and thus had the effect of sinking them upon the uterine tumor. If such, however, were the fact, although they undoubtedly must thus sink on it, still they would there occupy a laterally central position, be directly on the side, whereas they are so much posterior that Cloquet represents them as "looking backwards and into the iliac fossæ." The truth is, there is but one explanation of the matter—the anterior wall chiefly furnishes the supply to the expanding womb.

Fig. 3.



This second plate will also serve as an elucidation of the nature of one of the arguments used against me in the Dublin Medical Journal, viz. that the fallopian tubes at labour are "*always* to be found *in advance* of the womb," (Dub. Journal, March 1840, p. 32); so much so as, in the opinion of the writer, to call for the special precaution of the operator in performing the Cæsarean section. I believe, however, we need not waste any time in arguing this point of doctrine, with the above plate before us.

Dublin, October, 1840.

TREATMENT OF CYNANCHE.

To the Editor of the Medical Gazette.

Sir,

As the principal object of periodical medical works is the advancement of medical science, through the easy publication of practical experience, great praise is due to Mr. Joseph Bell, of Barrhead, for his communication in your Gazette, of the extraordinary efficacy of guaiacum in the cure of cynanche tonsillaris. He has reported six cases taken "at random," as he says, from forty, and so rapidly sanative is it, according to the cases which he has detailed, that no other remedy for the cure of that distressing complaint seems worthy of notice. I have tried it extensively myself for several years, but regret to say, with far less satisfactory result than has fallen to the lot of Mr. Bell. My attention was first drawn to it by my father; and amongst the practical memoranda which he left, (the offspring of nearly 60 years' practice, without one week's absence during the whole of that time!) I find the following observation on the disease in question:—

"Gargles I never prescribe in inflammatory sore-throats. I think they in general irritate, and increase inflammation. Sometimes I have seen a repellent gargle immediately remove the inflammation lower down, and produce cough and inflammation of the lungs: this occurred to me twice in my early practice, and I have never prescribed them since. I prescribe gargles only in aphthæ and putrid sore-throats. In inflammatory sore-throats I frequently prescribe *gum guaiacum* and nitre, thus:

> ℞ Gum Guaiac. ʒi.; Mucil. G. Arab. q.s. Nitri ʒi.; Aquæ destillat. ℥vii.; Syrup. Papav. alb. 3ii. Misce. Sumat Cochl. ii. 3tia vel 4ta quâque horâ.

"This practice, I believe, is almost confined to myself, but I have used it often with great success. I was first induced to give it from reading Home's *Principia Medicinæ*, in which he asks 'An specificum sit?' It generally operates on the bowels, and therefore cannot be continued long at a time. I was the more induced to give it from some degree of stimulating similarity to the cayenne always prescribed in sore-throats, even inflammatory, by the West Indians."

As far as my own experience goes I have found the most benefit to arise from free scarification of the inflamed tonsils, leeches to the throat, an emetic in the commencement of the attack, and calomel with purgatives and diaphoretics.—I am, sir,

Your obedient servant,
J. C. Badeley, M.D. Cantab.

Chelmsford, Nov. 4, 1840.

IRON AND ZINC IN DIABETES.

To the Editor of the Medical Gazette.

Sir,

If you think the subjoined case of diabetes mellitus of sufficient interest for insertion in the Medical Gazette, it is at your service.

H. F., æt. 38, an agricultural labourer, called on me for medical attendance towards the close of last March: he was then labouring under considerable debility: the quantity of urine secreted was much more than natural, and an increase had been noticed for two months previous. He complained of a sense of weight at the epigastrium, much increased after taking food: great irregularity in the action of the intestinal tube, with acid eructations; tongue white, and chapped in the centre, with red edges; pulse 84, very feeble: there was no evidence of any previous implication of the lungs, as the stethoscope and percussion gave no signs of any pulmonic disease. I found on examination the quantity of urine voided to amount to 18 pints in 24 hours, of a decided saccharine taste, sp. gr. at 60° 1023; on evaporation more than 6drs. of solid extract was yielded by a pint, so that about 108drs. of solid matter was secerned daily. I recommended an increase of meat in his usual diet, and prescribed

> ℞ Pil. Opii. ℈j. Ext. Hyoscymi. ℈j. M. fiant Pilulæ xxiv. Cap. i. ter in die.

This, with attention to diet, diaphoretics (the use of Dover's powder, o.n.) was unavailingly persisted in for some time. Then uva ursi, alum, and catechu, were administered, without any apparent good effect; the disease still progressing. Considering the important action of the sympathetic over the secretions of the digestive apparatus, and the evident derangement of the whole nervous system, whether primarily or secondarily affected, I determined to make use of the mineral tonics: to that intent I administered

> ℞ Ferri Sulphat. 3i.; Zinci Sulphat. ʒi.; Ext. Anthem. ℈ii. M. fiant Pilulæ xxx. cap. i. ter in die.

Under the use of this medicine the symptoms gradually decreased, and in the space of about two months no trace of the disease remained: towards the end of June this man resumed his agricultural occupations, and has not since had any return of his disease.

I am, sir,
Your obedient servant,
E. Howard.

Rotherfield, Sussex,
Nov. 2, 1840.

TUMOR OF THE PERONEAL NERVE.

By Thomas Gutteridge, M.R.C.S.

[*For the London Medical Gazette.*]

Mr. Docker, a hale person, aged sixty-four, was struck on the right leg by a pebble stone about thirty years ago. Severe aching pain was caused by the blow; and the spot where the injury was sustained, six inches above the ankle, and at the upper margin of the solæus muscle, continued a long time tender. In the course of a twelvemonth a substance was perceived there, which, being pressed, pain shot up the limb. It gradually increased in size; and about seven years since became much more tender than before. Pressure, whether intentional or accidental, caused pain to dart up to the head, and a shock to be felt through the whole system. The patient said the sensation was precisely that which is felt when the ulnar nerve is pinched at the side of the elbow-joint, only very much more intense. The part of the limb below the seat of injury was quite unaffected, and preserved its full sensibility. There was slight numbness in the tumor after very long walking, but no pain, either then, or at any other time, except as the result of pressure.

In the month of August, of the present year, the tumor was as large as a pullet's egg, and nearly spherical in shape; it had all the characters of an encysted tumor, and fluctuation could be distinctly felt. It was believed that the distress was caused by the tumor, compressing the peroneal nerve, and it was concluded, from its situation beneath the fascia, and partly under the solæus muscle, that no effectual relief could be given without cutting the tumor out. Accordingly, an incision was made, lengthwise with respect to the limb, so as to expose the tumor: its attachments were deep and firm. At the instant of severing the connection at the upper part the patient exclaimed "that's the nerve!" and complained of acute pain: the same sensation, though in a less degree, was experienced at the moment of dividing the lower portion. The wound was closed with plaister, and the limb bandaged and put to rest. Although the adhesive action followed, yet the wound healed slowly: much pain was felt in the parts below the division of the nerve, but none up the limb as formerly. The lower part of the leg and the foot were also very chilly. Altogether there was more disturbance of the health than could have been expected in a person of Mr. D.'s hardy constitution. It was necessary to improve his diet, and particularly to give wine, to counteract a tendency to ulceration at the lower part of the wound; and he required crutches to enable him to walk. At this time, ten weeks since the operation, he is in good health, and walks upright and firm. The only inconvenience remaining is a feeling of the outer side of the foot being *asleep*, as it is termed, and the consequent uncertainty as to the surface on which it rests: this, however, is diminishing, and the proper sense and natural heat are gradually restored.

The Tumor.—The cyst could easily be stripped off: it was evidently no more than the cellular tissue, condensed, forming the original sheath of the peroneal nerve. This disclosed a substance, egg-shaped, white, smooth, and glistening, and streaked with cream-coloured lines. These lines were plainly the separated filaments of the nerve: they were disposed longitudinally and in regular order, similar to the fibres of an onion. The tumor on being cut asunder presented an appearance not unlike what the vitreous humour of the eye would do if the fine membrane forming its cells could be thickened and rendered slightly opaque. The fluid contained in the cavities was viscid and lubricious, and being of a straw-coloured tint gave to the section a greenish cast. The enlargement began a quarter of an inch below the point where the nerve was cut across. The filaments here suddenly diverged, and spread equally around. Thus, with the aid of the thickened neurilema, a cyst was formed almost as strong as the sclerotic coat of the eye, which enclosed the structure above described—the deposit in the midst of the nerve. When the tumor was steeped in dilute alcohol it acquired considerable firmness, and an uniform cream-colour throughout.

This case is interesting, as shewing that the nervous cord is exposed to the same casualties as the other parts of the body, and that, on the infliction of violence, it suffers inflammation, and one or other of the natural terminations of that process. In this instance serous effusion into the cellular tissue connecting the nervous fibrils seems to have ensued. The irritation created by walking, together with the accidental bruising and frequent handling of the part, explain how the morbid action was perpetuated. And the appearances go far to account for the extreme tenderness of the part first hurt; for the pain propagated through the sciatic nerve upward to the brain, where the tumor was compressed; and also—what is the chief point in the diagnosis—the close resemblance of the tumor of the nerve, the proper neuroma, to an ordinary tumor independent of the nerve, and important to it only from contiguity, and the risk of interference with its functions by pressure.

In reference to this case it may also be remarked that the distinguishing characteristic of neuroma, as noted by Mr. Swan—the free movement of the tumor laterally but not longitudinally—was not clear. In so long a nerve as the peroneal a certain degree of motion might be permitted in the direction of the line of the nerve as well as sideways, (and certainly it was so to some slight extent in this instance), and with regard to the motion laterally, it was here, from the nature of the connections, about equal to that allowed of longitudinally. The conclusion then is (since it is admitted that all the distress that attends neuroma may be produced by the pressure of an independent tumor on a nerve) that there is not yet fixed any precise and definite test of tumor in the substance of a nerve, as contra-distinguished from tumor in the vicinity of a nerve, and consequently that the surgeon must, as a practical rule, approach cases like the present in uncertainty as to the real seat of disease, and be prepared to remove either the tumor that may intrude upon the nerve, or excise a portion of the nerve itself that may be found to have undergone change, according as exploration with the knife shall enable him to ascertain the condition of the parts.

Birmingham, Oct. 30, 1840.

FRACTURE OF THE RADIUS.

To the Editor of the Medical Gazette.

Sir,

I beg to forward you the following case of fracture of the radius produced by the action of the muscles: you may perhaps think it not unworthy a corner of your valuable publication.

A man, æt. 35, not remarkably muscular, presented himself at the North Dispensary on the 2d of November, with a fracture of the left radius just below the insertion of the pronator radii teres, produced as follows:—He held in his left hand a heavy bar of iron: in twisting his arm into the prone position, in order to place the under suface uppermost upon his anvil, the bone gave way at the point above mentioned.

I am, sir,
Your obedient servant,
H. H. Radcliffe.

Liverpool, Nov. 5th, 1840.

ON THE OPERATION FOR STRABISMUS.

To the Editor of the Medical Gazette.

Sir,

Should the following remarks be sufficiently interesting, their insertion in an early number of your periodical will oblige.—I am, sir,

Your obedient servant,
C. Radclyffe Hall.

Manchester, Oct. 28, and Nov. 9, 1840.

Although from the number of papers that have lately appeared in connection with the operation for strabismus, a certain degree of ridicule may be attached to one who ventures to add another to the list, yet I trust I shall be freed from the charge of presumption in directing the attention of your readers to a mode of operating more simple, I believe, than any which has hitherto been published. Having operated in the way I am about to describe in ninety cases, since Oct. 3d, I can speak with confidence as to the practicability of the operation, and as it has been approved of by all the surgeons who have seen it performed, and subsequently practised by several, I feel justified in offering it to the notice of the profession.

The patient being seated, and the opposite eye covered with a handkerchief, an assistant elevates the upper eyelid with his finger; the operator sitting in front of the patient, with the little finger of his left hand depresses the lower lid. The patient is then caused to direct his eye upwards and outwards. With a pair of fine forceps the operator takes up a small portion of the conjunctiva at the distance of about a quarter of an inch from the nasal margin, and rather below a line drawn from the inferior margin, of the cornea. With a pair of curved scissars, previously held in the right hand, this bit of conjunctiva is snipped off. Through the aperture thus made in the conjunctiva, the lower probe-pointed blade (of which the concave is the cutting edge) is passed along the sclerotic: being kept close to the globe, it is directed backwards and rather downwards: the upper eyelid is now allowed to fall, by depressing the handle of the lower blade: its probe-point rises upwards between the tendon of the internal rectus and the eyeball, causing a slight projection of the upper part of the conjunctiva. With his left hand the operator raises the upper lid *before* he draws the tendon forwards; then gently drawing towards him, the tendon is seen as a white opaque band across the blade, covered, together with the probe-point of the instrument, by conjunctiva. Closure of the blades, by dividing conjunctiva and tendon together, completes the operation. One pair of scissars and a forceps being the only instruments used, I think the operation can scarcely be more simplified.

Notwithstanding your late correspondent, "Speculum," strongly deprecates the attempt to operate on children, without using some instrumental means for fixing the eye, I experienced no difficulty in operating as above on a boy three years and a half old. I tried with the speculum in one instance, but found it much more in the way than the finger of an assistant. Of hooks of all kinds, as they certainly increase the pain, and injure more or less the sclerotica and conjunctiva, if they can be dispensed with, no argument against their use seems required.

In seventeen cases I completed the operation without any assistance, except from a person holding the head firm, separating the lids, and using the forceps with my left hand; and this is less formidable to the patient than any other mode of procedure. To succeed satisfactorily, however, the patient should be calm and steady, and the eye large, and not particularly irritable.

When the patient is much frightened and restive, and squeezes the eyelids strongly together, it is easier to pass a small steel probe, bent near the end at a very obtuse angle, through the opening in the conjunctiva beneath the tendon, and then, persuading the patient to open his eye voluntarily, to bring the tendon forwards, hitch the margin of the upper lid over the prominence formed by the end of the probe, and then to pass the lower blade of the scissars along the side of the steel probe. The probe is not larger at the end than elsewhere, is not grooved, and is fixed in a common scalpel handle. It is also useful to seek out and bring forwards the fibres which adhere far back, if the inversion still remains after the more superficial band of tendon has been divided.

I believe I may assume for this mode of dividing the rectus internus oculi the following advantages:—Simplicity, from the few instruments required; facility and rapidity with which it may be performed, (a surgeon who was present told me that in one case the operation was completed in twenty seconds); freedom from hæmorrhage and puffiness of the part until after the division of the tendon; as small a wound as possible; very much less pain than when the conjunctiva is first dissected off the tendon; impossibility of doing injury to the eye, should the patient prove unsteady, and, as sometimes has happened, snatch the instrument violently away.

The after-progress of the cases has

been in every respect satisfactory; and I may here mention the advantage derived from closing the eyelid by strips of gold-beater's skin or court-plaster. There is less sprouting of the granulations, and any ecchymosis disappears more rapidly than when wetted lint merely has been applied. I am indebted for the hint to Mr. Hunt.

The scissars I use are rather large, the blades being when closed an inch and a half in length; the curve is at first very slight, near the end rather greater. The probe-point on the end of the lowest blade is very small; the concave cutting edge is fine; every other edge smoothly rounded off. The upper blade is one-sixteenth of an inch shorter, and its convex edge is sharp to its extremity. Unless the blades close with the utmost accuracy, and are very well set, they will not divide the structures by one cut.

To any one about to repeat the operation I have described, the following remarks may not appear impertinent:—The chair should have a high back, against which the patient's head can be firmly held, so as to preclude any sudden jerk backwards. The opposite eye should be covered effectually, or the squinting eye cannot be directed sufficiently outwards, or *vice versâ*, and the difficulty of keeping the eyelids apart will be greater. The snip in the conjunctiva should not be made too high, or too far from the cornea, or the cellular tissue between the internal rectus and the wall of the orbit alone will be brought forward. The probe-pointed blade should be pushed far enough back into the orbit before its point is elevated, there being nothing which can suffer injury from so doing. The sense of resistance when the tendon is felt, and the audible snap which often accompanies its division, are very characteristic.

OBSERVATIONS
ON THE
PATHOLOGY OF STRABISMUS.

By Edward Hocken, Esq.

(For the London Medical Gazette.)

It is a fact, well proved by repeated observation, that there exists a tendency, both in double and single strabismus, for the eye either not affected at all, or much less so than the other, to assume the degree and extent of the squint which previously existed in the other, when the sound eye is covered, and the squinting eye is called into exercise.

This mutation of the strabismus from the deranged to the previously healthy eye (I am now speaking of single strabismus) is a peculiarity well worthy of note. The sound eye is covered, whilst the distorted eye is employed, and we find that there is either an immediate change, or that this change is not effected until the originally normal organ has been bound up for some time; but that this tendency exists in every case, to a greater or less extent, provided that the strabismus have been of some duration. I would inquire how is this effected? Perhaps this may be the explanation: the organs have been acting irregularly for a length of time, without that due degree of connection and consent which ought to subsist, and to this they have become habituated, so that they turn constantly, having the same relation to each other in their abnormal condition as they previously moved in harmony during their healthy state; hence, when the proper direction is temporarily given to the squinting eye, the organ originally healthy has an inclination still to hold the same relation to that eye as it did whilst affected with strabismus, and is turned out of its healthy axis in obedience to this impulse.

If this explanation be true, then it would apply also to the cure of strabismus by operation; here, for some time, there would be a tendency in the opposite eye to assume the squint. That such is the case I am perfectly convinced, not only in double but single strabismus. These are my proofs:—a gentleman, in whom the squint was single, and in whose other eye there was no immediate tendency to assume an abnormal direction, on covering the organ and calling the squinting eye into action, was operated on for the complaint; the operation was at first successful, and the squinting eye was directed healthily; but after some days the previously healthy eye began to assume the squint, and shortly afterwards became affected with strabismus, in an equal degree to the originally maldirected organ.

Mr. B. Lucas, in his excellent little "Treatise" on strabismus, states that, even in those cases which he denominates single, namely, those in which there exists no immediate tendency to the transfer of the squint, he has seen, in several instances, the eye which was not operated upon have a slight inclination inwards for several days after the operation; but, when the healing process was completed, and both eyes were freely exercised by the patient, this inclination inwards gradually became less and less (p. 49). On this subject we may also consult the experience of MM. Guérin and Roux.

Now it becomes of importance to trace the difference between single and double strabismus, since it has been made a question whether single strabismus ever occurs; whilst, on the contrary, we find some authors asserting that it is always single, and that consequently double strabismus does not exist.

Mr. Elliot, in the Lancet for Sept. 12, came to the conclusion "that the strabismus could not be regarded as confined to one eye." His reason for this conclusion was founded on the fact, that, when the sound eye was closed, the affected one became straight; but on raising the lid of the former it was found inverted, though the position of the eyes was soon reversed again. I shall presently allude to this subject, in order to ascertain what constitutes double strabismus. From the Lancet we will turn to the Dublin Medical Press; and here we shall find Mr. Crommelink stating, from an enlarged opportunity of practical experience, that he is disposed to support the opinion of Buffon, namely, "that strabismus never affects both eyes simultaneously;" this decision having for its foundation the results of the operation. He tells us that where one eye is much affected, the other, no doubt, at first sight, seems equally so; but when the distorted eye is restored to its natural position by the operation, the opposite eye loses its apparent deviation, either immediately or after a short time. My belief is, that both these opinions are incorrect, and that strabismus occurs single—confined to one eye, and also as a double lesion, when both eyes are concerned.

By what symptoms do we diagnosticate double and single strabismus? Mr. Bennett Lucas, in his work, previously alluded to, page 49, directs us to form our diagnosis by placing the hand obliquely over the eye, in such a manner as to hide all objects in front of it, but kept sufficiently raised at the temporal margin of the orbit to enable us to watch its movements. The patient is directed to exercise the eye which is uncovered; and if, at the time that he brings it to the centre of the orbit, the covered eye retreats into the inner canthus, the case is one of double convergent strabismus, and both eyes will require to be operated upon; but if both eyes are at this period straight, or even if the covered eye has but a slight inclination inwards, the case is one of single convergent strabismus, and the inner rectus muscle of one eye only will require to be divided.

The practical deduction from this reasoning is evidently most excellent as a general rule, but I believe with some exceptions; I must differ, however, somewhat in the determination of those cases which are, and those cases which are not, double. To judge of the presence of double strabismus we must be guided by the appearance of the eyes themselves, for here both organs are habitually (or both are, during the continuance of the squint) turned out of their normal axis; this, during the ordinary employment of the organs, is especially evident in one, but from a variety of circumstances may change in intensity from eye to eye; yet still, under all circumstances, both globes, not one, are morbidly directed.

The tendency still to hold the same relative situation to each other exists in all cases, double or single; how far double strabismus is dependent on this tendency becoming increased and habituated, whilst the originally squinting eye becomes more and more abnormally situated, I cannot say; but I think it probable that every case is primarily single, and, therefore, that this, in conjunction with the original exciting cause, is the most likely explanation of its formation. It is therefore probable that they are intimately connected; but still I maintain that where the squint, in ordinary vision, is habitually confined to one eye, that that case has no title whatever to the name of double strabismus, and this whether there be an immediate or a slower transfer on binding up or covering the opposite eye; the one being merely a more developed degree of the other.

From a due consideration of the subject, therefore, we may deduce that it would be necessary to warn patients of this tendency of transfer in the strabismus from the eye which may be operated upon, to its fellow; and this especially in true cases of double squint, and in those where there exists a strong tendency to assume the same relation to the true squinting eye as the healthy eye did whilst abnormally directed. Should a transfer occur, and should it resist mild measures, such as gentle employment of both and each organ, together or separately, the squint becoming permanent, then the operation must be repeated on the opposite eye.

As regards the actual condition of the muscles in strabismus, I stated in a recent paper (p. 943), that in many severe and long-continued cases, where excessive muscular action was induced, hypertrophy of the muscle so acting had eventually supervened; and that in all cases, whatever their remote pathology, the actual local condition was always either excessive or deficient innervation, or excessive muscular action of primary origin. For particulars I must refer to the paper itself. I mention this subject, since it has been alluded to by Mr. Duffin, in a paper which appeared last week. He says, "I am not prepared to assert that such a change in the development of the muscles of the eye never exists, though I do not believe it to be the general condition of the inner muscle in cases of this description." Judging from analogy of what we observe to occur in other parts, under similar circumstances, we should say that this must be the frequent consequence of habitual strabismus. It would take place in all cases where excessive muscular action was the primary lesion; but how long the affection might remain as mere spasm (permanent contraction from excess of innervation), from derangements or diseases of the general nervous system, brain, or abdominal viscera, I will not pretend to say. But it is evident that hypertrophy must be a frequent termination, since excessive muscular action in other parts, if long continued, invariably leads to this result; whilst, on the contrary, parts not subjected to their proper employment, become debilitated in their functions, and atrophied in their structure. Hypertrophy would not occur in those cases where the squint resulted from deficient action of some muscles, the healthy direction being disturbed by normal action in their opponents simply, nor in any case where the vital attraction between the capillaries and muscular tissue was not unduly augmented. Here, perhaps, I may add congenital cases (which are very rare), depending on original deformity, or congenital shortening, &c., of the muscle or muscles.

Most pathologists who have written on strabismus confirm these statements: thus we find Mr. Middlemore stating that in a case of divergent strabismus, examined by him, the external rectus of the eye affected with strabismus was much larger than it ought to have been—much larger relatively to the size of the other muscles of the same eye, and comparatively, with those of the opposite organ. "Other circumstances," he says, "may induce a disproportion in the form and power of the muscles of the eyeball, and will lead to the establishment of a variety and extent of strabismus, corresponding to such changes."

Mr. B. Lucas informs us that he has had many opportunities of witnessing the great development of the inner rectus muscle in convergent strabismus, and that many of his professional friends, who have been present at his operations, have satisfied themselves that the muscle was in this state.

In such cases the muscle was not merely increased in bulk, but was also much more vascular, and of a deeper colour, than natural—conditions which contrast remarkably with the appearance the muscles of the eye present in their healthy state (*loc. cit.*, p. 28.) Dr. Franz also, in his answer to "Solomon Single-Eye," states that, in his experience, the muscles are frequently hypertrophied.

The common termination of the condition of a muscle, therefore, under preternatural excitement, is hypertrophy, whilst its fellow or antagonist becomes elongated, enfeebled, and atrophied. Mr. Middlemore confirms this statement also: he says, "one of the muscles of the eye-ball may become atrophic from an undue strength or action of its antagonizing muscle, which, by controlling its power, limits its sphere of action, and induces wasting of its volume." (Vol. ii. p. 573.)

In the operation, when all the tendinous fibres and condensed cellular tissue are completely divided, the squinting eye usually regains its proper position, but in some few cases it is turned more than is proper in the contrary direction. How is it that this does not always take place? And how can we explain the fact of the eye only acquiring its healthy direction? Mr. Duffin, in a paper for the 19th of September, says that the most simple and natural reply to this query seems to be the fact that, in a state of health, voluntary muscles have no disposition to contract, unless called into action by an effort of the will; and that when the eye is restored to the position it ought to occupy, the abductor muscle, being then completely relaxed, will not draw it unduly outwards, unless that effort of the will be exerted. But to this I would remark that such results are not seen in nature; for how is it that strabismus occurs when the opposite muscle is weakened? how is the mouth, &c. turned towards the opposite side from paralysis of the muscles of the face? and, indeed, I might go on proposing numerous questions of a similar tendency. The fact is this: that all muscles, during their healthy state, although not in a condition of active contraction, maintain a degree of vital tonicity; antagonizing muscles act and react on each other. Instance the abdominal muscles, which always maintain a degree of uniform pressure on the contents of the abdomen, so that under all conditions this *cavity*, as it is called, is always *full;* the two surfaces of the peritoneum, when not separated by diseased action, are always directly in contact. My explanation is this: that in all cases where the muscle—the antagonist to the squinting side—is considerably elongated, in proportion to its bulk, its fullest contraction serves only to restore the eye to its proper direction; whilst, on the contrary, if this be not the case, the eye is turned outwards, remaining so until the reunion of the divided muscle restores the equilibrium of action. That this is true I think that I can prove, when we consider that even healthy muscles possess but a limited sphere of action, and that if we relax a muscle beyond a certain degree, its fullest contraction will not serve to exert any power on its fixed points. This is beautifully illustrated by the following experiment, which should always be kept in mind in the treatment of dislocated thumb. If we forcibly bend the hand on the forearm, to its utmost degree, we so far relax the flexor pollicis longus as to render void the greatest voluntary effort to flex the last joint of the thumb; in fact we find that we have not the slightest power over it. From hence we learn that the fullest contraction of this muscle serves only to shorten it to a certain extent, and that if we exceed this degree its utmost efforts will exert no force whatever on its fixed attachments.

As a general rule, the tendency still to hold the same relative situation to each other is manifested in the eyes, even under these circumstances; and when one is, from the causes already mentioned, turned outwards, the other eye is turned inwards in a similar degree. But there appear to be exceptions in this case, in which it would be advisable to ascertain the duration, extent, and peculiarities. For an account and explanation of these cases I must refer to Mr. Duffin's paper of the 25th of September; premising, however, that I never saw or heard of any other cases of double divergent strabismus but those alluded to in that paper.

We may infer, finally, that the explanation of those cases, where the natural axis of vision only is restored by the operation, is, that elongation and debility of the muscle prevent further contraction; not that, in a state of health, voluntary muscles have no disposition to contract unless called into action by an effort of the will.

October 7th, 1840.

ON SOME PROPERTIES OF A COMBINATION OF ALBUMEN WITH ACIDS.

To the Editor of the Medical Gazette.

SIR,

I SHALL be glad if you think the accompanying observations worth recording.

I am, sir,
Your obedient servant,
H. BENCE JONES,
M.A., Trin. Coll. Cambridge,
Student at St. George's Hospital.

November 4th, 1840.

Dr. Burrows, in his lectures published in the 14th. vol. of the MED. GAZETTE, shewed that alkalies and their carbonates prevented the coagulation of albumen by heat; and he pointed out the false deduction that thence might arise in cases of dropsy with albuminous and alkaline urine. It has happened to me to find that a similar error may occur in cases of albuminous urine in which a free acid is present.

The urine of a patient in St. George's Hospital was highly acid, gave a precipitate with nitric acid, which was not redissolved when heated. This urine would not coagulate with heat alone. I thence concluded that the precipitate with nitric acid was not albumen; nor was it until many months afterwards that I found that acid urine might contain albumen, and yet not coagulate with heat.

It has long been known that acetic acid prevented coagulation. Dr. Prout, in Thomson's Annals of Physiology, appears hereby to have distinguished incipient or chylous from serous albumen. He says, "on the addition of acetic acid and boiling, the fluid (chyle) coagulated; this, therefore, was not albumen;" and on adding acetic acid to acid urine containing albumen, or to dilute serum, and heating them, no coagulation will take place. Whilst making some experiments on this subject, I tried hydrochloric acid, and then I also found that if a minute quantity be added to urine, or dilute serum, that no coagulation with heat occurs: nitric acid I also found prevented coagulation. If to about a drachm of albuminous urine, or dilute serum, a drop of strong nitric acid be added, a precipitate will be formed which, on agitation, will be found to redissolve, and on heating this no coagulation will take place. I have even found, when trying to coagulate albuminous urine by heat in a test-tube which I had previously used in testing with nitric acid, and which I had not carefully washed, that the small quantity of acid left would prevent the formation of a coagulum even at a boiling temperature.

I have said that the precipitate first formed with a drop of nitric acid is redissolved. I attributed this, at first, to an excess of albumen; but, by using a much stronger solution of albumen, this precipitate was not more readily redissolved. The real explanation I have lately met with in Berzelius's Lehrbuch der Chemie, in which he says that the nitrate of albumen is soluble in water, but insoluble in dilute nitric acid. Hence the nitric acid should be added in excess, to precipitate the albumen permanently; and it is therefore advisable in testing, to use a little albuminous urine, and put an excess of acid, instead of nearly filling the glass or test tube, and then adding only a drop or two of nitric acid.

There is apparently an error in what I have stated in cases where the urine or other fluid is alkaline, or rather where all the albumen is combined with alkali; when, as Dr. Burrows showed, acid must be added before coagulation by heat can take place.

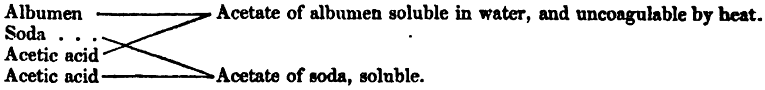
A boy was admitted into St. George's Hospital, May 1840, with anasarca and coagulable urine; on the 13th he was bled. The serum was alkaline, milky, opalescent; specific gravity 1·0158. Urine passed about the same time, after standing twelve hours, slightly alkaline; specific gravity 1·0142. Portions of urine and serum were heated separately; both coagulated very slightly, becoming only cloudy, and giving no distinct precipitate: a small quantity of acetic acid being added to each, and both again heated, the serum gelatinized, while a heavy, curdy precipitate, took place in the urine. By excess of acetic acid both were prevented coagulating by heat. Dilute nitric acid (with care not to add too much or too little) exhibited the same phenomena. Here the albumen appeared to be first combined with alkali, and to be set free by a little acid when coagulation took place. By the addition of a little more acid in the one case, and acetate in the other, a nitrate of albumen was formed, both which are soluble in water. If too much nitric acid was added, the nitrate of albumen became insoluble in the dilute nitric acid then present.

A diagram may perhaps make this more clear.

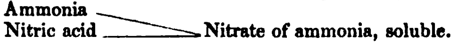
The serum in the blood consisted of albuminate of soda, water, &c. to which acetid acid being added, we have

Albumen ———————Set free; coagulable by heat.
Soda . . . ⟍
Acetic acid ————→Acetate of soda, soluble.

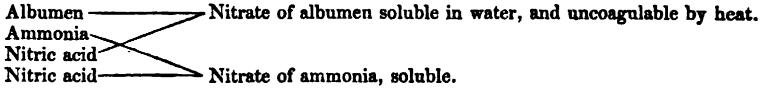
If more acetic acid was added than was sufficient merely to combine with the soda, we have


Albumen
Acetate of albumen soluble in water, and uncoagulable by heat.
Soda . . .
Acetic acid
Acetic acid
Acetate of soda, soluble.

In the urine the albumen was probably combined with ammonia, forming an albuminate of ammonia, which Dr. Burrows found uncoagulable by heat; to this, if a small quantity of nitric acid be added, we have



If a little more nitric acid was added than was sufficient to combine with the ammonia, we have


Albumen
Nitrate of albumen soluble in water, and uncoagulable by heat.
Ammonia
Nitric acid
Nitric acid
Nitrate of ammonia, soluble.

If more nitric acid was added than was sufficient to form the nitrates of albumen and of ammonia, dilute nitric acid became also present, in which the nitrate of albumen is insoluble, although it is quite soluble in water.

From the above we may infer that the quantity of albumen present in urine cannot be estimated to the degree of coagulation by heat.

ANALYSES AND NOTICES OF BOOKS.

"L'Auteur se tue à alonger ce que le lecteur se tue à abréger."—D'ALEMBERT.

Animal and Vegetable Physiology considered with reference to Natural Theology. By P. M. ROGET, Sec. R.S., &c. &c. Third edition, with numerous additions and emendations.

THIS, one of the best of the Bridgewater Treatises, has already reached the third edition—a proof of its excellence, and of the estimation in which it is held by the scientific world.

It is stated in the preface that "the object of this treatise is to enforce the great truths of Natural Theology, by adducing those evidences of the power, wisdom, and goodness of God, which are manifested in the living creation." The author has accordingly confined himself to such facts as afford evidences of design, and these facts he has arranged in a scientific form. "By furnishing those general principles, on which all accurate and extensive knowledge must substantially be founded, this compendium forms a useful introduction to the study of Natural History, the pursuit of which will be found not only to supply inexhaustible sources of intellectual gratification, but also to furnish, to contemplative minds, a rich fountain of religious instruction." To render these benefits generally accessible, Dr. Roget has treated such subjects only as are adapted to every class of readers of either sex.

By comparing this with the two former editions, it will be found to contain a great number of valuable additions; indeed, the science of physiology is so extensive, and so many eminent individuals have recently devoted themselves to its cultivation, that it was incumbent on our author to give a summary of all that had been previously done in this most interesting branch of knowledge, so as to be adapted in every respect to the present advanced state of the science. Many parts, especially of the chapters on the circulation and on the nervous system, have been recomposed. A summary has been given of the recent researches and theories of Schleiden and of Schwann on vegetable and animal development—of Breschet's discoveries respecting the structure of the skin—of the very general presence of cilia, and of their mode of action—of fossil infusoria—of the most recent inquiries regarding the infusoria—Mr. Moseley's theory of discoid shells—the mode of formation of the epiphragma of the helix, &c. These are a few of the more interesting additions with which the present volumes abound. The recent microscopical discoveries on the structure of ivory, and the new views relating to dental development, have, we observe, not been passed unnoticed. In short, we regard these volumes as valuable, not merely to the general reader, to all classes of whom they are admirably adapted, but as conveying to the more profound physiologist a very comprehensive and accurate summary of the present state of physiological knowledge. The simplicity of style, and clearness of expression, are such as cannot fail to engage the attention of those who are entering on the study of physiology. Indeed, we recommend these volumes with great confidence to the notice of all classes of readers, as containing much valuable information of the most interesting kind.

MEDICAL GAZETTE.

Friday, November 13, 1840.

"Licet omnibus, licet etiam mihi, dignitatem *Artis Medicæ* tueri; potestas modo veniendi in publicum sit, dicendi periculum non recuso."
CICERO.

MORTALITY IN ENGLAND AND WALES.

MR. FARR observes, in the letter to the Registrar-General, on which we commented last week, that while the mortality of men is 7 per cent. higher than that of females, the liability of the two sexes to death from particular diseases is very various. Thus, in 1838, hooping-cough carried off 4036 males, and 5071 females; and consumption destroyed 27,935 males, and 31,090 females; while, on the other hand, 4242 males, and only 3430 females, died of hydrocephalus; and 152 males, and only 55 females, of diabetes. Mr. Farr attributes the excess of mortality from consumption among women to their in-door life, and the use of stays; but we should have supposed, theoretically, that these causes would have been counterbalanced in the other sex by their intemperance and extreme exposure to inclement weather—causes which must certainly excite phthisis in the predisposed. We are inclined to attribute more to the compression of the thorax than to confinement within doors; but much, no doubt, also arises from an original difference of temperament. According to the registers, 2032 males, and 1530 females, died of diseases of the heart and blood-vessels; but Mr. Farr remarks, that this is below the true number; for though the diagnosis of these maladies has been considerably improved, the art of auscultation is not generally diffused. "1338 males, and 313 females, died of diseases of the urinary organs. The mortality of the former from the stone and gravel was 4 in 100,000; of the latter, 0·5. The difference in the 7 heads is exaggerated by, but it cannot be exclusively attributed to, mechanical causes." (Mr. Farr, p. 73.) Thus, the mortality from stone and gravel was eight times as great among men as among women; a disproportion, which, though great, is less than one might have imagined.

The deaths in childbirth and from miscarriage were about 5 in 1000 cases, while in the previous year, 1837, they were only 4 in 1000.

The deaths of 125 males and 36 females are attributed to intemperance. This head does not include those who died of *delirium tremens*, nor the mass of diseases which are caused by excess, but seems to be limited to some of the instances where the excess was so gross, as to have become notorious among the neighbours of its victims.

As the chief instruments of intemperance are beer, wine, spirits, and opium, Mr. Farr gives the increase which has taken place of late years in the consumption of each. "The decennial rates of increase were for malt, 24; wine, 27; spirits, 39; opium, 53 per cent." The quantity of wine consumed in this kingdom was, and is, so curiously small, as mathematically to demonstrate the oppressiveness of the duty levied on it; and to show with equal clearness how difficult it is for gentlemen of £5000 a year to sympathize with the domestic arrangements of those on whom fortune has looked more coldly. The quantity of spirits used is certainly too great; but the best check on this will be the reduction of light wines to one-half or one-third of their present price; and we trust that the war mania of the French may not deprive us of this reciprocal advantage. The opium entered for home consumption from 1820-4 was 19,276 lbs. annually; but from 1834-8 it was 33,482 lbs. annually —a painful increase!

The deaths ascribed to starvation in 1837 were 64 in number; in 1838 they were 123, exclusive of infants under one year old. Some of these were from cold, others from hunger, many from both united. It appeared from some correspondence in the newspapers a few months ago, that the Poor Law Commissioners do not like these investigations of Mr. Farr into cases of death from destitution. In respectable Malthusian society you must not mention such words as "cold," hunger," "want of the necessaries of life." They would think you a philanthropist, or what not; and we should recommend the prudent to be eminently cautious in such company. Addison tells a story of a knot of country people, who having got hold of a copy of "The Whole Duty of Man," were persuaded that it was a satire especially written against their village; and we warn those whom it may concern that if they utter such inflammatory words as "starvation," "misery," "neglect of the poor," or the like, the Commissioners may put in force the powers with which they are entrusted against those who obstruct the working of the Act. On the other hand, a convenient doctrine, to be secretly rather than openly lauded at Somerset House, has been broached in the Kensington Union. It is, that to shelter the houseless is a crime punishable by imprisonment. Only let this be universally established, and the foul ulcer, pauperism, must be excised. "To say to the poor, ye shall eat the bread of affliction, and drink the water of affliction, and ~~be very~~ miserable while here, required not so much a stretch of heroic faculty in any sense, as due toughness of bowels. If paupers are made miserable, paupers will needs decline in multitude. It is a secret known to all rat-catchers; stop up the granary crevices, afflict with continual mewing, alarm, and going-off of traps, your 'chargeable labourers' disappear, and cease from the establishment. * * * Rats and paupers can be abolished; the human faculty was from of old adequate to grind them down, slowly or at once, and needed no ghost or reform ministry to teach it."*

"I am not only witty myself," says Falstaff, "but the cause of wit in others;" and your zealous starvationist, not satisfied with "carrying out the Act," as the phrase is, to its full extent, likes the same refusal of succour in all quarters; he pines to see the "due toughness of bowels" epidemic; and wishes sympathy to be treated like a vagrant, as it is.

These reflections have been suggested by the report of an inquest which was held at Kensington on the 27th of October, and the 2d of the present month, before Mr. Wakley, on the body of Elizabeth Friry. It is difficult to give, in a moderate compass, even the main facts of a case which occupies more than three columns in the Times of November 4th; but the following seems to be its gist. The deceased, who was labouring under extreme indigence and sickness, superadded to the weight of sixty-five years, lodged at the house of a poor woman named

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* Carlyle's Chartism, p. 17.

Ryan, at 4, Pembroke Place, Kensington, where she had nothing but the boards to lie upon. The day before her death she was seen by Mr. Wright, a Union surgeon; and Ryan says she asked him "if he would be so kind as to give me an order to get the deceased into the workhouse; to which he replied, he knew nothing about it, as he was afraid Mr. Madden would give me imprisonment for keeping such a person in my house, if I went to him." Very soothing, truly, to the dying woman, who "heard Mr. Wright speak about imprisonment." Soon afterwards, Mr. Madden, the relieving officer, visited the house, and, when he left it, Ryan "ran down after him into the road, and told him what Mr. Wright had said about imprisonment, when Mr. Madden said a prison was good enough for me, as I had no business to keep such a person as the deceased in the house." This story of the threat is not, as might be supposed, an extravagant fiction of the witness Ryan; for Mr. Wright says in his evidence, "I certainly did tell Ryan she might get into trouble, and might probably be sent to prison for harbouring deceased. I have often told persons so before, and may again." The end of the case was, that, on the Monday, about 12, a cart was procured to convey Elizabeth Friry to the workhouse, but she had been dead some minutes. Mr. Madden, who is registrar of deaths, as well as relieving officer, entered it as a case of dropsy, from Mr. Wright's information; but, unfavourable rumours having been bruited, Mr. Wakley very properly issued his warrant for the disinterment of the body. The post-mortem examination was performed by Mr. Wildbore, of Fleet Street. There was a deposit of lymph on the posterior part of the cerebrum, and both the dura and pia mater were vascular; but the point which struck him most was the unparalleled emaciation of the corpse; it "was little more than bone and integument all over."

The verdict of the jury was, "We find that Elizabeth Friry died from fever, brought on by the want of good and sufficient nourishment; and that the jury cannot separate without expressing their disapprobation of the conduct of the relieving officer and of the surgeon in not being more prompt in their attention to the wants of the deceased; and, at the same time, the jurors think it right to express their condemnation of a system which allows the offices of relieving officer and registrar of deaths to be united in and held by the same person."

Messrs. Wright and Madden do not appear to have committed any legal offence; and poor Friry had been so long worn down by the fiercest extremities of want, that it is unlikely that the most sedulous kindness could have resuscitated her. But it is too clear that her unwillingness to apply for relief had been produced by the harshness with which such applications are now treated; and it is equally obvious that the officers of the Kensington Union understand their mission but too well. *Lower the rates* is the cry of the economists, and nothing can be easier, if the due misanthropy be not wanting. The poor can be ground down, as Thomas Carlyle has it, slowly or at once. Here is unquestionably another case for Mr. Farr's gloomy list.

The number of violent deaths is greater than we could have supposed. They amounted to 11,727 persons, of whom 8357 were males, and 3368 females. More than a thousand of these were suicides. The tendency to suicide is greatest in London, and least in Wales. This is just as it might have been presupposed. The pulses of life beat most equably in a secluded province, and most feverishly in the capital of the world; it is like the difference between playing for sixpences, and staking your fortune on each throw!

The excessive mortality of dense populations is a well-established fact. Mr. Farr is perhaps too sanguine in hoping that this is not inevitable; and he observes that in London itself there is the greatest variety in the healthiness of districts; so that the mean duration of life is from 25 to 30 years in the eastern, and from 40 to 50 in the northern and western districts.

The improvements which he suggests are all desirable and all practicable. Better drainage, and the disuse of burial in towns, are among them; to which we would add some forcible restraint on the cupidity of those landlords who build houses in such a style that they are necessarily foci of disease. Among the more remarkable deaths we observe three from taking Godfrey's cordial, one from the application of calomel to cure the itch, and one from sea-sickness.

We now take leave of Mr. Farr, giving him our hearty thanks for his efforts to diffuse information on so important a subject.

SIR ANTHONY CARLISLE.

We have this week to record the death of Sir Anthony Carlisle, which took place on the 2d inst., in the 73d year of his age The deceased was born near Durham, in 1768, and commenced his professional studies under the auspices of an uncle who practised at York. At an early age he was sent to London, and studied under Hunter, Cruikshank, and Baillie. In 1793 he succeeded to Mr. Watson at Westminster Hospital. He delivered a regular course of lectures on surgery for many years, and contributed largely to the Philosophical Transactions and other scientific works; indeed, his name is to be found more frequently in the medical and other periodicals, since the early part of the present century, than that of almost any other writer. His love of publishing did not entirely abandon him to the last. In this journal for March 8th, 1828, will be found a paper on Erysipelas from his prolific pen, and more recently he has frequently figured in the newspapers. He was also the author of several Croonian lectures, and Hunterian orations, as well as of a separate work on the "Disorders of Old Age and Means of prolonging Human Life." He was knighted by George the Fourth when Prince Regent; he was for many years a member of the Council of the College of Surgeons, and one of the Board of Examiners; and twice filled the office of President. He was one of the curators of the Hunterian Museum, and Professor of Anatomy to the Royal Academy, an appointment which he held for sixteen years.

It will thus be seen that Sir Anthony led rather a bustling active kind of life. He had the character, moreover, of being rather bigotted and tenacious—in the College of Surgeons obstinately supporting the old doctrines of a by-gone age, and persisting in retaining his situation of surgeon to Westminster Hospital when all who wished him well must have been anxious for his retirement. There is a portrait of him by Shee, which represents the Knight as a well-dressed and rather gentlemanlike person. Of this we can only say, that if it ever resembled him he had changed marvellously before the period of our first seeing him.

ROYAL MEDICAL AND CHIRURGICAL SOCIETY.

November 10th, 1840.

Dr. Clendenning in the Chair.

The first meeting of the present Session was held at the Society's Rooms on Tuesday evening last. The room was from the commencement well filled by the members of the Society, and the friends introduced by them. In consequence of the unavoidable absence of the President, Sir B. C. Brodie, the chair was taken by Dr. Clendinning, one of the vice-presidents, and for the same reason, we presume, the business of the society was at once commenced without the usual speech, or any other special formality. After the reading of an abstract of the proceedings of the last meeting of the last session, and of a list of the numerous works presented to the Library of the Society during the vacation, a paper was read on the Mode of Observation to be adopted in the Investigation of the Diseases of the Nervous System, by Dr. Marshall Hall, of which an abstract will be given next week.

At the conclusion of the paper an animated discussion took place between Drs. Burne, James Johnson, Weatherhead, Addison, Marshall Hall, and others, which continued till the usual period for the adjournment of the meetings had arrived.

On the table there were two specimens of fracture of the neck of the femur within the capsule, in both of which there was bony union. A description of one of these, by Mr. Stanley, was intended to have been read, but the discussion on Dr. M. Hall's paper having occupied all the Society's time, the reading of the former was postponed to the next meeting.

BREVIATE
OF THE
DRAFT OF THE MEDICAL BILL,

By Mr. Hawes.

Clause 1. Preamble.

2. Interpretation clause: "Art of Medicine"—"Medical Practitioner"—"Chemist and Druggist."

Clauses referring to Registrar.

3. Secretary of State to appoint three Registrars—one for each kingdom. Lords of Treasury to fix salaries and expenses necessary in carrying Act into Execution until the election of first Councils (*for appointment of future Registrars, etc. see clauses* 12 *and* 13.)

4. Registrars to grant certificates to practise the Art of Medicine to all persons at present legally entitled to practise Medicine or Surgery in any part of the Kingdom—Registrars to grant them for the part of the Kingdom only for which they are appointed to act.

Medical Lists.

5. Annual payment for certificate, which is to be renewed annually, and a list of the persons obtaining a certificate to be published every year by the respective Registrars—the persons whose names appear in such lists alone to have a vote for the respective Councils.

Councils.

6. A Council to be elected in each Kingdom every three years—twenty Councillors for each.

7. Candidates for office of Councillor to be nominated by any six persons entitled to vote sending a notice to the Registrar forty days previous to election—the names of persons nominated to be printed in voting papers, together with the names of the persons nominating.

8. Election to be held within four miles of General Post Office, London, and within two miles of the General Post Offices in Edinburgh and Dublin.

9. Voting to be by ballot—voting paper either delivered personally, or sent by post, enclosed in a declaration of vote direct to Registrar—Registrar to send a voting paper and declaration to every Medical Practitioner fourteen days before election.

10. The twenty persons having a majority of votes to be elected—Registrar to add up votes—if there be any equality of votes, to ballot publicly out of the persons having the equal votes so many as may be required to make up the twenty—after first election, Councils to appoint two persons to superintend the election—at the first, Secretary of State to appoint two.

11. The Universities of Oxford, Cambridge, and London, the College of Physicians and of Surgeons and Apothecaries' Company, London—the Universities of Edinburgh, Glasgow, St. Andrew's, and Aberdeen, and the College of Physicians and of Surgeons, Edinburgh, and the Faculty of Physicians, Glagow—Trinity College, Dublin, and the College of Physicians, and of Surgeons, and the Apothecaries' Society, Dublin—each to send one member to their respective Councils.

12. Registrars after the first election of Councils to be appointed by the respective Councils.

13. Councils may remove their Registrar—to give notice of the vacancy—President of Council may appoint deputy, in case of temporary disability of Registrar.

14. Each Council to elect a President—appoint a Treasurer—three Auditors of Accounts—Clerks—to fix all salaries—to fix remuneration to each Member of Council for every attendance.

15. Questions to be decided by majority, one half of the whole Council being present—Meetings to be summoned three days.

16. Special Meetings may be called by President or three Members of Council—every summons to specify business to be transacted.

17. All monies and fees to be paid to Treasurer—out of which all expenses are to be paid, and the surplus may be spent in the advancement of Medicine and Literature, &c.

18. Treasurer to pay money only upon an order, signed by three Councillors and the Registrar.

19. Accounts to be audited twice a year, and to be published in the respective medical lists.

20. Councils may sue and be sued in the name of their Registrar.

Senate.

21. Councils each to select three persons every five years to form a Medical Senate.

22. Registrar of England to be Registrar of Senate.

23. Senate to meet in London once every year—expenses of members to be paid by the respective Councils—special meeting may be called, or place of meeting may be altered by any two Councils or Secretary of State, fourteen days' notice of such meeting to be given to the Members of Senate—Senate may, when once met, adjourn from time to time until dissolved.

24. All questions coming before the Senate to be negatived, unless a majority of the whole Members of Senate assent thereto.

25. To appoint a President.

26. Members of Senate may attend any meeting of any Council or any examinations.

27. Expenses of Senate to be paid in equal portions by the three Councils.

28. Senate to make bye-laws to regulate education of Students, and the examinations for Diploma of Qualification to practise Medicine or to carry on trade of Chemist and Druggist—bye-laws to be published in *London Gazette*—may be disallowed by the Queen in Council—if first Senate neglect to make bye-laws within twelve months, Secretary of State to do so.

29. To publish a Pharmacopœia.

Disqualification.

30. No person to practise the Art of Medicine after February 1, 1842, unless he possess a certificate (*see clauses* 4, 32, *and* 34), or carry on the trade of Chemist and Druggist after December 1, 1842, without a license (*see clause* 35).

31. No bodies after bye-laws are published to grant a Diploma, certificate, or license to practise the Art of Medicine, except according to this Act.

Qualification.

32. Council to appoint examiners annually—to examine subject to the rules laid down by the Senate—Council to order Diploma to be granted to persons upon the recommendation of examiners—persons obtaining Diploma of qualification to practise Medicine, to be entitled to obtain a certificate for any part of the Kingdom, in the same manner as persons entitled to them at time of passing this Act—Persons obtaining Diploma of Qualification as Chemist and Druggist, to be entitled to license.

33 Medical men entering Army or Navy to possess a Diploma.

34. Persons practising as Dentists or Cuppers at the time of the passing of Act, to have certificate to continue to practise as Dentist or Cupper.

Chemists and Druggists.

35. Registrars to grant licenses to persons obtaining Diploma of qualification to carry on Trade of Chemists and Druggists upon a payment annually—licenses to be renewed—a list of persons obtaining a license to be published in medical lists—all persons at present being Chemists and Druggists or assistants, or apprentices, claiming the exemption within twelve months, to obtain licenses, and not to be called upon to renew them annually, unless they desire—if they renew them, their names are to be published in the respective medical lists, and not otherwise.

Assistants and Apprentices.

36. Medical Practitioners and Chemists and Druggists to make declaration of assistants and apprentices in their employ annually—persons being assistants must possess a certificate or license, unless they be apprentices—Assistants not to renew their certificate or license annually.

Medical Practitioners.

37. Powers and privileges of Physicians, Surgeons, and Apothecaries, to be transferred to Medical Practitioners under this Act.

38. May recover charges for professional visits and consultations.

39. Medical Practitioners and Chemists and Druggists to be exempt from serving on juries and other offices.

Penalties.

40. On Registrar, or his deputy, for wilfully neglecting or refusing to discharge duties imposed upon them by this Act.

41. For illegally obtaining or attempting to obtain a Diploma, certificate, or license.

42. For making a false declaration.

43. For practising Medicine without a certificate, or trading as a Chemist and Druggist without a license.

44. For employing or acting as an assistant without being qualified, or for neglecting to make a declaration of assistants and apprentices.

45. Penalties to be recovered before one magistrate in London, or two elsewhere.

46. If penalty not paid, magistrate to commit to prison—one half of pecuniary penalties recovered to go to informer, the remainder to the Treasurer of the Council where offence committed.

47. Persons convicted may appeal to Quarter Sessions.

48. If any day fall on Sunday, business to be transacted on the following day.

49. Act may be amended during Session.

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UNIVERSITY OF LONDON.

Bachelorship in Medicine.

SECOND EXAMINATION. — PASS EXAMINATION.—1840.

Monday, November 2.—Morning 10 to 1.

Examiner, Dr. ROGET.

1. What are the peculiarities in the circulation through the Liver; what purposes in the economy are served by that organ; and what are the structures which perform similar offices in invertebrate animals?

2. Specify the principal anatomical differences between the structure of Man and that of the Quadrumana.

3. Explain why the lungs collapse, on an opening being made in the parietes of the thorax.

4. Describe the conditions of the eye producing Myopic and Presbyopic vision; state the optical causes of the indistinctness of vision under those conditions; and explain the optical principles on which these defects may be artificially remedied.

5. Explain, on mechanical principles, the advantages derived from the tubular form of cylindrical bones.

6. Describe the mechanism of respiration in Fishes; and assign the reason of their dying when placed in atmospheric air.

7. What purposes are answered by the Eustachian tube; and why is deafness consequent on its obstruction?

8. Describe the progressive changes which occur in the organs of circulation of the Frog, during its transition from the Tapdole to the adult state.

9. Describe the peculiarities of structure in the skull and bones of the face of the carnivorous family of Mammalia, as contrasted with those of Herbivorous tribes.

Afternoon, 3 to 6.

CELSUS DE RE MEDICA.

Examiners, Dr. BILLING and Dr. WATSON.

Various quotations from different Books of Celsus.

Tuesday, November 3.—Morning, 10 to 1.

SURGERY.

Examiners, Mr. BACOT & Sir S. HAMMICK.

1. Give the classification of Wounds arising from external violence; their nature, symptoms, and treatment.

2. Describe the symptoms and treatment of both idiopathic and symptomatic Erysipelas; and state in what cases, and under what circumstances of external injury, Erysipelas most commonly occurs.

3. Detail the symptoms of a strangulated Inguinal Hernia—the methods you would employ for its reduction, and if they were unsuccessful, at what period and under what circumstances would you proceed to the operation;—describe the mode of operating, and give the subsequent management of the patient, according to the various conditions of the contents of the Hernial Sac.

4. Enumerate the different dislocations of the Hip Joint; the mode of detection, and the manner of reduction of each respectively.

4. For what Injuries or Diseases would you amputate at the Shoulder Joint? Describe the operation and after-treatment.

Afternoon, 3 to 6.

MEDICINE.

Examiners, Dr. BILLING and Dr. WATSON.

1. How do we judge of the propriety—and of the requisite amount—of Blood-letting, in inflammations?

2. What are the progressive symptoms, morbid appearances, and treatment of Pertussis? State particularly the symptoms which would indicate the necessity for blood-letting.

3. State the usual causes of Diarrhœa. how it is to be distinguished from dysentery, and the treatment under different circumstances.

4. Describe the symptoms and usual course of measles, the varieties of the disease, the chief sources of danger, and the treatment.

5. What parts are most commonly the seat of Neuralgia? give an outline of the treatment.

6. Describe the symptoms, and ordinary course and treatment of *Erysipelas of the Head and Face.*

7. What are the signs of *Delirium Tremens*? How is it distinguishable from *Phrenitis*? Lay down the methods of cure respectively suitable to these two diseases.

8. *Emphysema of the Lungs.*—State fully,
   (1.) Its anatomical characters.
   (2.) Its effects (when extensive), in modifying the shape of the Thorax.
   (3.) Its auscultatory signs.
   (4.) Its general symptoms.
   (5.) The means by which these may best be relieved.

9. Describe
   (1.) The symptoms which denote that a calculus is descending from the kidney towards the bladder.
   (2.) The symptoms which warrant the belief that the calculus has recently entered the bladder.
   (3.) The indications of treatment in either case, and the means of fulfilling them.

10. What are the symptoms, anatomical characters, and proper treatment of *Peritonitis*?

Wednesday, November 4.—Morning, 10 to 1.

MIDWIFERY.

Examiner, Dr. LOCOCK.

1. The anatomical relations between the mother and the fœtus, in the Human subject.

2. The changes which take place in the Human Ovaries from impregnation and during menstruation.

3. The causes of protracted Labour.

4. The varieties of Puerperal Convulsions, and their several treatment.

5. The pathology of Phlegmasia dolens.

6. The symptoms and treatment of Exhaustion from hæmorrhage.

7. The immediate and remote causes of Infantile Convulsions.

Afternoon, 3 to 6.

FORENSIC MEDICINE.

Examiners, Prof. DANIELL, Dr. LOCOCK, and Mr. PEREIRA.

1. How would you distinguish, in the case of a person found hung, whether the suspension was before or after death?

2. By what symptoms would you distinguish a case of poisoning by Opium from one of Apoplexy?

3. In what cases of poisoning is artificial respiration a remedial agent; and what is the simplest and easiest method of effecting it?

4. What are the impediments to the action and the fallacies of Marsh's test for arsenious acid; and how would you obviate them?

5. What are the substances used as hair dyes; and how would you distinguish stained from natural hair?

6. The causes of Sterility—which remediable, and which not.

7. The most frequent causes of death from *Malpraxis* during the act of parturition—and the distinction between natural appearances and the effects of violence as discovered after death.

8. The diagnosis of Mania—Melancholia—Monomania—Dementia—and Idiotism.

VACCINATION CONTRACT.

To the Editor of the Medical Gazette.

SIR,

I TRUST the importance of the following subject to the medical profession and the public will obtain for it a place in the next number of your valuable journal.—I am, sir,

Yours very respectfully,
GEORGE DRUMMOND.

Croydon, Nov. 4, 1840.

In accordance with the instructions of the Poor Law Commissioners, the Guardians of the respective Unions have issued, or will issue, circulars to some or all of the medical practitioners in such Unions, offering to contract with them to vaccinate all persons who may apply to them, on terms very inadequate to the importance of the duty imposed. Such circulars have been variously received in different Unions. In some Unions persons have been found imprudent or mean enough at once to accept the proffered insult: in some the contemptible offer has been rejected with disdain. Some practitioners have demanded a larger remuneration, while others have considered the extension of the contract to others than paupers a work of supererogation, and have treated it with silent contempt. As practitioners have almost universally vaccinated the poor gratuitously, the general dislike of the profession to the contract arises less from the amount of remuneration offered for the vaccination of the poor, than from the extension of the contract to all classes in society; thereby depriving the contractor of his honest right to claim from the more opulent a just reward for his services. The latter objection to the contract has been entirely removed to the satisfaction of the medical practitioners in the Croydon Union, by alterations in the contract, which alterations have been sanctioned by the Commissioners.

The most important alteration consists in declaring the remuneration to be for *reporting only*, leaving unaltered the right of the profession to claim from their patients the usual fee for the operation; thus making the allowance by the Guardians an addition to, rather than a substitution for, their former remuneration, and requiring for such addition reports to be made.

Should such a system be generally adopted, the medical profession will, I trust, cooperate with the Commissioners in bringing to maturity that national blessing, which (to the honour of the profession be it said) they have given birth—the extermination, or, at any rate, the mitigation of a loathsome disease, attended annually in England and Wales alone by a sacrifice of 12,000 lives, and by the suffering of 36,000 from its effects.

The same concession made by the Commissioners to the Croydon Union, will, I have no doubt, be extended to other Unions, if the practitioners in the respective Unions in a body claim it. To give at length my correspondence with the Guardians would encroach too much on the pages of this journal. I therefore briefly state that (the Guardians having requested me to make such alterations in the contract as would remove the objections of which I had complained,) I sent them an altered contract, of which the following is an abstract:—

It is hereby agreed, and the said doth contract with the said that from and after the day of he will vaccinate all persons who shall apply to him, at any reasonable hour of the day, at his own residence, and do and perform all other acts and things, as shall be necessary for the immediate purpose of causing such vaccination to be successfully terminated. And that he will keep books, give certificates, and report small-pox cases. And for the above-described reporting, the said Guardians agree to pay to the said the sum of for every case of vaccination, which shall have terminated successfully, having been conducted and reported by the said according to the terms of this contract. And it is hereby further agreed, that (as the above remuneration by the said Guardians is for reporting only), this contract is not to be construed in anywise to alter or interfere with the payment by those who can afford it, of such fee for vaccination, as was customary before this contract was made.

Twenty-eight days' notice, by either party, to put an end to the contract.

In witness whereof, &c. &c.

The Guardians having obtained the sanction of the Commissioners to the above contract, have now adopted it; and although the remuneration for reporting is only one shilling and sixpence per case, most of the medical practitioners in the Union have accepted the appointment of vaccinators.

The letter from Mr. Nankivell, in the last number of the Lancet reflects great credit on the professional consistency of the medical practitioners of St. Columb; and I respectfully submit that the adoption of the above contract in that Union would accord with the intentions of the guardians, and the consistency of the practitioners.

DEATHS FROM SMALL-POX.

To the Editor of the Medical Gazette.

Sir,

I beg to enclose the copy of a circular sent to the registrars by the Registrar General. If you should deem it proper to call the attention of medical practitioners to the subject, and to request them to investigate the points referred to, it could not fail to do good. The medical man in attendance would, of course, gain more accurate information as to previous vaccination than a common informant could give the registrar.

I am, sir,
Your obedient servant,
William Farr.

Nov. 7th, 1840.

(circular.)

General Register Office,
October 31st, 1840.

Sir,

In consequence of the great number of cases of death from small-pox in the metropolis, I am directed by the Registrar General to recommend that in every case of death from small-pox registered by you, you shall inquire whether the individual who has died had previously had small-pox, or been vaccinated, or not—and if informed on that point, shall insert in the column of your register headed "Cause of Death," under the words "small-pox," the following additional words: "after natural small-pox," —"after small-pox by inoculation,"—"after vaccination," or "without previous vaccination," as the case may be.—I am, sir,

Your obedient servant,
Thos. Mann,
Chief Clerk.

CORNWALL MEDICAL ASSOCIATION.

To the Editor of the Medical Gazette.

Sir,

I have taken the liberty of enclosing to you a printed copy of resolutions passed at the first meeting of the Cornwall Medical Association. I shall feel obliged if you can get them inserted in your valuable journal.

I am, sir,
Your obedient servant,
J. H. Nankivell, Sec. of C.M.A.

St. Columb, Nov. 5, 1840.

At a meeting of medical practitioners held at the Red Lion Hotel, St. Columb, on Monday, the 19th of October, 1840, J. Fry, Esq. in the chair,

It was unanimously resolved—

1. That this meeting do constitute itself into a society, to be called the "Cornwall Medical Association," having for its object, by the individual and united efforts of its members, the maintenance of such principles of medical reform as shall conduce to the welfare of the public, and the general benefit of the profession.

2. That the following are the principles of medical reform which are approved of by this Association: — viz. That all legally qualified practitioners shall form a faculty of medicine, who shall elect a senate for each capital in the United Kingdom. That these senates shall be subject to the same laws and regulations, and shall form by-laws for the government and protection of the faculty. That the members of the existing medical corporations shall be invited to take part in the formation of the first senate. That all candidates for degrees in medicine shall be

publicly examined by a board elected as the senate shall suggest. That a high medical qualification shall be demanded from candidates, who shall receive equal rights, titles, and privileges; and that a register shall be kept of the names of the members of the faculty; and that no one whose name does not appear on the register shall be entitled to practise. That no member shall sell drugs, or compound medicines, (unless prescribed by himself, or others in consultation with him, and for his own patients,) except by special license.

3. That committees shall be formed of the members of this Association, residing in the towns or parishes comprised in any Union; and that it shall be a by-law,—That no member of this Association will offer his services to any public institution, (under the Poor Law Act,) without previously taking the sense of the members of the committee as to the amount of remuneration to be required for such services. Also,—That the members of each committee shall meet, on the second Monday of every March, at the town or place in which the Poor Law Union is centred, for the purpose of submitting to each other the subject of any medical contract which may be proposed; and that no member of the profession who may allow himself to be introduced into any neighbourhood, by Poor Law Commissioners, or otherwise having the management of the poor, in opposition to any resolutions adopted by this society, in either of its divisions, shall be deemed eligible as a member of the Cornwall Medical Association; or countenanced in any way, professional or otherwise, by any member of this society.

4. That the members of this Association shall meet twice in each year for the general interest of the profession, viz. on the first Monday in every March, and on the first Monday in every September; the next meeting to be held at Bodmin, when and where the succeeding place of meeting will be fixed on.

5. That each member shall subscribe annually the sum of £1. for the purpose of defraying the necessary expenses of the society, and the foundation of a medical library: and that another object of the society shall be the discussion of medical and other scientific subjects, at the periodical meetings.

6. That at the next meeting a proposition shall be brought forward to consider the propriety of uniting this association with the "Provincial Medical and Surgical Association:" and also of establishing a benefit fund for the relief of widows and orphans of deceased surgeons, or members of the profession in cases of distress.

7. That a petition, embracing the principles of reform, as set forth in the second resolution, and as well humbly praying that parliament will take into consideration the propriety of establishing an equable and uniform system by which medical practitioners shall be remunerated as contractors with Poor-lcw Guardians, shall be prepared and signed by the members of the Association, (or the president on their behalf,) and that the county members be respectfully requested to present the same in the approaching session.

8. That a copy of the resolutions, passed at this meeting, shall be printed and forwarded to every member of the profession in the county, with the object of forming as extensive an Association as possible.

9. That Mr. Nankivell be appointed secretary, (*pro tempore*,) and Mr. Moorman, treasurer, (*pro tempore*,) and that the first subscriptions shall be paid into the hands of the treasurer, at the ensuing meeting at Bodmin.

MEDICAL CORONERS.

To the Editor of the Medical Gazette.

SIR,

MAY I direct your attention to a rather singular statement made in to-day's Times in reference to the accounts of the coroners for Middlesex. The magistrates reported that Mr. Wakley's charge "for attending 107 inquests amounted to £74. 8s. 6d., while Mr. Baker's charge for holding 88 inquests amounted to £121. 14s. 6d.; being an average, in the case of the former coroner, of 13s. 11d. per inquest, whilst in the latter it was £1. 10s. 5d." On an explanation of this difference being requested, it was stated that the heavier charges of Mr. Baker arose from the number of post-mortem examinations he had ordered. Not having former accounts before me I cannot say whether this discrepancy in the proceedings of the two functionaries in this instance is accidental or not. If not, and the greater frequency of post-mortems directed by Mr. Baker is the true explanation of the difference, I must say medical men have little cause to congratulate themselves for the trouble they took in securing the election of a medical candidate. Not that I would wish to see the interests of my profession preferred to those of the public at large (although this same public uses us strangely enough sometimes), but I believe that the true interests of the community, as certainly the progress of science, would be (seeing that we have no public officer properly educated and trained for the prosecution of inquiries in medical jurisprudence) most advanced by post-mortem examinations being instituted in every case of sudden death, and indeed under all circumstances in which a coroner's interposition can be necessary. But it will be said that I am labouring under error, and that we here see one of the benefits resulting from the boasted panacea for the evils of that clumsy and antiquated contrivance, the coroner's court. Is not the diminished number of inspections a natural result of the medical acumen now brought into play by the new coroner? Do not his acquirements enable him to decide when such an examination is necessary, and when not, while poor Mr. Baker is obliged to rely upon, and take this means of obtaining, the opinions of others? But, sir, who are those others? They are the medical witnesses, the legitimate sources of the opinions which ought to influence the jury, and I consider it an intrusion upon the part of the coroner, when he permits his own opinions to interfere with the full development and expression of those of such witnesses. The case would be different if the coroner were a medical man, exclusively devoted to this description of inquiry, although he would be even then much more properly employed as an official witness than as a coroner, who, being in fact a judge, should content himself with laying the facts distinctly before the jury. I believe the race of Admirable Crichtons is extinct, and I cannot see how the numerous employments, political, editorial, and otherwise, allow Mr. Wakley time for that study and attention to the subject of medical jurisprudence, which would be absolutely necessary for the due fulfilment of the dictatorial part he seems so desirous of enacting.—I am, sir,

Your obedient servant,

John Chatto.

Leigh St., Burton Crescent,
Oct. 30th, 1840.

[We cannot help thinking that letters such as the above ought in the first instance at all events to be sent to Mr. Wakley.—Ed. Gaz,]

WARRANT

REGULATING THE APPOINTMENTS AND PAY OF ARMY MEDICAL OFFICERS.

Victoria R.—Whereas it has been represented unto us, that the rank of assistant inspector of hospitals can be dispensed with; and that with a view to extend the means of promotion in the medical department of our army, it is expedient to institute a second class of staff surgeons, who shall, in rank and pay, correspond and be on a footing with the regimental surgeons, and at the same time to improve the pay and advantages of the first or superior class of staff surgeons. We are therefore pleased to direct, that from and after the date of this our warrant, all former rules and orders respecting the titles, ranks, periods of service, and pay of the medical officers of our army, shall cease and determine, and that this our warrant shall, from and after the 1st day of October, 1840, be considered the sole and standing authority upon the subject.

1. The medical officers of the army are in future to be distinguished by the following ranks and communions, viz.:—Assistant surgeon, regimental surgeon, and staff surgeon, 2d class; staff surgeon, 1st class; deputy inspector general of hospitals; inspector general of hospitals.

2. Assistant Surgeon.—No medical candidate who has not passed his examinations at the Royal College of Surgeons of London, Edinburgh, or Dublin, shall be eligible for this commission, and the assistant-surgeon must have served on full-pay five years before he shall be elegible for promotion to the rank of regimental surgeon, or of staff surgeon of the second class.

3. Regimental surgeons and staff surgeons of the second class must have served ten years in the army on full pay before they shall be eligible for the next step of rank.

4. A staff surgeon of the first class must have served three years at home, or two years abroad, in this rank, before he shall be eligible for promotion.

5. A deputy inspector-general of hospitals must have served five years at home, or three years abroad, in this rank, before he shall be eligible for promotion to the highest rank of inspector-general.

6. The rates of daily pay for the before-mentioned ranks are to be in future regulated by the length of time which the officers of each class shall have served upon full-pay according to the annexed scale; provided always, that when any officer is hereafter promoted, he shall commence upon the *minimum* pay of his new rank, notwithstanding his length of service, agreeable to the said scale, may have given him a claim to a higher rate of pay, as before he shall be allowed such higher rate of pay he will be required to serve on each inferior rate of pay attached to his rank the following period—viz. one year, if he had been in the medical department antecedently to the 29th of July, 1830, and two years if he received his first medical commission subsequently to that date; but if the officer thus promoted had higher pay in his old rank then the *minimum* of his new rank, he shall commence upon that rate of pay which may be next above his former pay, and before he obtains any further increase shall serve the period above prescribed, viz.:—

RANKS.	Rates of Daily Pay subject to the above Provisions.											
	After 25 years' actual service.			After 20, but under 25, actual service.			After 10, but under 20, actual service.			Under 10 years' actual service.		
	£.	s.	d.	£.	s.	d.	£.	s.	d.	£.	s.	d.
Assistant Surgeon	0	10	0	0	10	0	0	10	0	0	7	6
Regimental Surgeon and Staff Surgeon, 2d class	1	2	0	0	19	0	0	15	0	0	13	0
Staff Surgeon, 1st class	1	4	0	1	2	0	0	19	0	—		
Deputy Inspector-General of Hospitals	1	10	0	1	8	0	1	4	0	—		
Inspector-General of Hospitals . .	2	0	0	1	18	0	1	16	0	—		

7. In addition to the pay of their ranks, the officers at the head of the medical department on foreign stations shall receive allowances at the undermentioned rates when serving under the following circumstances, viz.:—

If with an army in the field of 10,000 men or upwards . . . . . . 20s. a day.
Ditto. . . . 5,000 ditto 15s.
Ditto. . . any less number 10s.
If serving in a colony where the force consists of 1,500 men, or upwards . . . . . 5s.

Given at our Court, at Windsor, this 14th day of October, 1840, in the fourth year of our reign.—By Her Majesty's command,
T. B. Macaulay.

POISONING WITH ARSENIC AND ANTIMONY.

EXPERIMENTS BY M. ORFILA.

M. Orfila commenced his experiments in one of the amphitheatres of the Faculty of Medicine, before a special commission of the Academy of Medicine and a numerous audience. The professor made a number of experiments on poisoning by arsenical acid and tartar emetic, and, by the programme which he distributed, undertook to prove —

1. That arsenical acid and tartar emetic introduced into the alimentary canal, or placed on the subcutaneous cellular tissue, are absorbed, mingled with the blood, and carried through all the organs of the animal economy.

2. That they remain for a certain time in the viscera and muscles, where their presence is demonstrated; but that, from the time of the poisoning, a part of the portion which is absorbed leaves these tissues, and is eliminated by the urinal process.

3. That this elimination, which is much more rapid in case of tartar emetic than of arsenical acid, continues during several days, until the tissues in question have been completely freed from the presence of these poisons.

4. That it is therefore advantageous, and even indispensable, in the treatment of poisoning by poisonous substances, to favour the secretion of urine.

5. That it is possible, in most cases, to distinguish whether the arsenical acid and tartar emetic which are withdrawn from the viscera of the human corpse have been absorbed during life, or have entered those viscera through "cadaveric imbibition" after death.

6. That the most fitting process for detecting small quantities of those absorbed poisons, consists in destroying the major part of the entire of the organic matter, by carbonizing them with concentrated azotic acid, or decomposing them with azotate of potash, and introducing the products into Marsh's apparatus modified.

7. That it is always easy to distiinguish arsenic from antimony through the form of spots, and to be quiet certain that those spots proceed neither from the apparatus nor the chemical agent employed.

8. That there exists in the bones both of man and of several animals, an arsenical compound insoluble in water.

9. That from the muscular flesh of the human body may be extracted a matter which M. Orfila believes to be formed of an excessively small proportion of arsenic, sulphur, and an organic substance.

10. That in the earth of certain cemeteries there are found quantities, infinitely small, of arsenic, which boiling water will not dissolve.

11. Finally, that it is easy, in a legal inquiry, to avoid those errors which would appear at first sight to spring from the admitted fact of the presence of arsenic in human bones and muscles, and in the earth of certan cemeteries.

M. Orfila then proceeded to make his experiments. Several dogs were poisoned; some by the introduction of 12 grains of arsenic in tartar emetic into the stomach, others by inoculating them under the skin with an infinitely small quantity of these poisons, imbibing it through the vessels being found a much more ready mode than absorbing it through the digestive organs. Upon the death of these animals, which was expected to take place in 24 hours, ulterior experiments would take place. After having explained the theory of Marsh's apparatus, and satisfied himself and his audience as to the purity of the reactions which he meant to employ, M. Orfila proceeded with his comparative proofs upon the remains of two dogs, one of which had not taken arsenic, and the other had died at the expiration of three hours, after receiving a quantity of arsenic into his stomach, preliminary precautions having been taken against vomiting, and against the action of the urinal process. The following results were obtained:—

1. The urines of the dog, which had not been poisoned, yielded, when submitted to Marsh's apparatus, manifest signs of arsenic, while those of the dog which had been killed by suspension, without poison being administered, did not exhibit one atom of it.

2. A very small portion of the liver of the poisoned animal, subjected to a preliminary treatment by suitable chemical porcesses, and afterwards exposed to Marsh's apparatus, yielded multiplied spots of arsenic, while the entire liver, lungs, spleen, and heart of the dog killed by suspension, on being submitted to the same chemical treatment and reactions, did not exhibit the smallest trace of arsenic.

MENSTRUATION DURING GESTATION, AND AMENORRHŒA IN THE INTERVALS.

By Dr. Meurer.

A woman, æt. 27, and now for the fourth time pregnant, has always had her menses regularly during pregnancy, and only during that time. They come on without any illness; and she has always borne healthy children at the full period. While unmarried, and except during pregnancy, she never menstruated, but she was never unwell from it. Her general appearance is rather masculine; it appears, therefore, that in her, as in all viragos, the sexual functions require a powerful excitant, such as pregnancy, to make them be energetically performed. The menstruation appearing in such a person during pregnancy may be regarded as a wise effort of nature to relieve the local fulness of the sexual organs, which might prove injurious.—*Med. Correspendenzblatt.* Bd. 9. No. 31.

SPONTANEOUS TURNING.

By Dr. Thumen, of Prenzlau.

The author was to attend a woman whom he had delivered on two former occasions. Two midwives assured him that the head of the child had presented properly, but had retired an hour previously, when the woman overpowered by pain had violently thrown herself round in bed, an action which was followed by much hæmorrhage. Since then she had complained of unbearable pain in the whole abdomen, and the whole left side, in particular, was excessively tender; the pulse small, and from 120 to 130; the face pale and sallow; the eyes were sunken; and there was frequent vomiting. On examination, neither os uteri, nor vaginal portion of the uterus could be reached, but much dark blood rushed forth. The author apprehended a rupture of the uterus. On introducing his whole hand, he reached the os uteri, which was high in the pelvis and much dilated, but entirely closed by the placenta. Passing by the placenta and the breech of the child, he was easily enabled to grasp the feet, which lay forwards, and thus rapidly complete the turning. The child lived, and the mother remained well. The pains entirely ceased in two days.—*Med. Zeit.* and *Schmidt's Jahrbücher.*

MISCELLANEOUS CASES.

Myelitis rheumatica.—(Rheumatic inflammation of the spinal marrow.) Dr. Olzewski misinterpreted the symptoms, which severally indicated pneumonia, hepatitis, and bronchitis, until the case was cleared up by the position of the patient, who lay constantly stretched out at length on his back.

Hypertrophy of the liver.—This case was cured by Dr. Olzewski with moxa and foot-baths containing nitric acid. The patient was thirty odd years old, and the disease had probably been caused by an ague.

Spasm of the chest.—The same physician cured this disease, which occurred in a violent form in a woman aged 82, and resisted all other remedies, with the fused nitrate of silver. He gave one-thirtieth of a grain a day, and four grains effected a cure.*

Bite of a viper.—Dr. Weger gives a case where this was followed by inflammation of the tongue and the neighbouring parts. The affected organs swelled to such a degree, that tracheotomy was necessary to prevent suffocation, and the patient was then saved by bleeding, scarification of the tongue, &c.

Diabetes mellitus.—Dr. Graef narrates a fatal case of this disease. In five weeks the patient consumed 150 grains of opium, and took ammoniated copper for seven weeks, but without advantage.—*Schmidt's Jahrbücher*, from the Reports of of the Royal Medical College at Königsberg.

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* The small dose in the text is not very likely to discolour the skin; but we think this remedy ought never to be administered internally, without warning the patient of the possibility of the occurrence, and obtaining his consent to the risk.—*Translator's note.*

STRABISMUS.

DATE OF MR. LUCAS'S OPERATION.

To the Editor of the Medical Gazette.

SIR,

YOUR last number of the MEDICAL GAZETTE contains a letter in which I am charged with the novel and serious offence of attempting to substitute one date for another, in my account of the first case of strabismus on which I operated; I have, therefore, to request the favour of your inserting in the forthcoming number of your journal the accompanying letters; and I also beg to say I shall not trouble you with any further communication on this subject.—I am, sir,

Your obedient servant,
P. BENNETT LUCAS.

12, Argyle Street, Nov. 11, 1840.

Copy of my letter to Dr. Hingeston and Mr. Wardrop, Jun.

9th Nov. 1840.

My Dear ——,

If your memory serves you, pray oblige me by stating, in answer to this, the day on which you asssisted me in the operation upon Catherine Culbert.—Ever yours,

P. B. LUCAS.

12, Argyll St.

Dear Mr. Lucas,

I perfectly recollect the case of Catherine Culbert, on whom you operated for strabismus, and in which Dr. Hingeston and myself assisted you. The date of the operation as reported in the Lancet, viz. April 7th, 1840, is perfectly correct.

Yours very sincerely,
JAMES J. M. WARDROP.

Charles St., St. James's,
November 10th, 1840.

19, Queen's Buildings,
Brompton Road,
11th Nov. 1840.

My Dear Lucas,

Having assisted you in the operation upon Catherine Culbert, during which I suggested a deviation from Dieffenbach's mode of operating, I read the report of her case in the Lancet at the time with attention, and was satisfied as to its correctness in all particulars, so that I feel convinced that the date is there rightly stated. -Yours truly,

ROBERT HINGESTON.

[Any farther communication on this subject, from either gentleman, must be inserted in the *extra limites* department.—ED. GAZ.]

MEDICAL APPOINTMENTS.

Dr. P. Black and Dr. Goolden have been appointed Physicians to the Dreadnought Hospital Ship, in the room of Dr. George Budd, who had resigned on his appointment to the Professorship of Medicine at King's College.

Mr. H. Thompson, at present Assistant Surgeon, succeeds Sir Anthony Carlisle as Full Surgeon to Westminster Hospital, nearly as a matter of course.

Several gentlemen have started for the office of Assistant Surgeon, among whom are Mr. Malyn and Mr. Guthrie, Jun.

The Governors of Middlesex Hospital have decided on having an Assistant Physician: we observe Dr. Leighton in the field.

ROYAL COLLEGE OF PHYSICIANS.

THERE have been elected to the fellowship—J. Hope, and C. J. B. Williams.

Have passed to the fellowship from the list of candidates — G. E. Paget, Henry Powell, Mervyn A. N. Crawford, R. N. Goolden, Alexander J. Sutherland.

Have been admitted as licentiates—James Bovell, Henry Bell, Anthony Yeoman, Thomas Smith, J. N. Porter, Anthony T. Carpenter, Richard Oliver, William Strang, Thomas West, George R. Rowe, J. Ogden, Morris Pritchett, Thomas O. Prichard, Robert T. Allaway, John G. Stewart, Frederick B. White.

ROYAL COLLEGE OF SURGEONS.

LIST OF GENTLEMEN ADMITTED MEMBERS.

Friday, November 6, 1840.

H. Julian.—H. A. Duncan.- A. C. Robertson.—W. C. Calthrop.—A. E. Turnour.—J. H. Partridge.—A. Kitt.—W. H. Scales. — G. Downing.—G. Lizey.—W. C. Williamson.—R. D. D. Allan.

APOTHECARIES' HALL.

LIST OF GENTLEMEN WHO HAVE RECEIVED CERTIFICATES.

Thursday, November 5, 1840.

John Dixon Fidler, Whitehaven.—J. Deacon, Sheffield.

METEOROLOGICAL JOURNAL.

Kept at EDMONTON, *Latitude* 51° 37 32' *N.*
Longitude 0° 3 51" *W. of Greenwich.*

Nov.	THERMOMETER		BAROMETER.	
Wednesday 4	from 42	to 53	29·21	to 29·32
Thursday . 5	46	51	29·18	29 24
Friday . . 9	39	51	29·10	28·94
Saturday . 7	45	54	29·10	29 17
Sunday . . 8	38	53	29·25	29·32
Monday . . 9	42	51	29·08	29·09
Tuesday . 10	40	53	29·04	29·24

Winds S.W. and S.E.

On the 4th, morning cloudy, with rain; otherwise clear. The 5th, morning and evening cloudy, with rain; afternoon clear. The 6th cloudy, with frequent showers. The 7th generally clear, except the morning, when rain fell heavily. The 8th and two following days generally clear. A shower of rain on the morning of the 9th.

Rain fallen, ·93 of an inch.

CHARLES HENRY ADAMS.

WILSON & OGILVY, 57, Skinner Street, London.

THE
LONDON MEDICAL GAZETTE,
BEING A
WEEKLY JOURNAL
OF
Medicine and the Collateral Sciences.

FRIDAY, NOVEMBER 20, 1840.

LECTURES
ON THE
PRINCIPLES AND PRACTICE OF PHYSIC,

Delivered at King's College, London,

BY DR. WATSON.

LECTURE IX.

Inflammation. Its morbid and its salutary effects. Sketch of the local and constitutional phenomena of inflammation as it occurs in external parts. Examination of the symptoms of inflammation; pain; heat; redness; swelling. State of the capillary blood-vessels, and of the blood in a part inflamed.

INFLAMMATION must needs occupy a large share of the attention both of the surgeon and the physician. In nine cases out of ten the first question he asks himself upon being summoned to a patient is, "have we inflammation here?" It is continually the object of his treatment and watchful care. It affects all parts that are furnished with blood-vessels, and it affects different parts very variously. It is more easily excited by many external causes, and therefore it is more *common* than any other special disease. A great majority of all the diseases to which the human frame is liable begin with inflammation, or end in inflammation, or are accompanied by inflammation during some part of their course, or resemble inflammation in their symptoms. Most of the organic changes of different parts of the body recognize inflammation as their cause, or lead to it as their effect. In short, a very large share of the premature extinction of human life in general is more or less attributable to inflammation.

Again, inflammation is highly interesting not only in its morbid phenomena and destructive consequences, but in its healing tendencies also. It is by inflammation that wounds are closed, and fractures repaired—that parts adhere together when their adhesion is essential to the preservation of the individual—and that foreign and hurtful matters are conveyed safely out of the body. A cut finger, a deep sabre wound, alike require inflammation to re-unite the divided parts. Does ulceration occur in the stomach or intestines, and threaten to penetrate through them? Inflammation will often anticipate and provide against the danger—glue the threatened membrane to whatever surface may be next it—and so prevent that worse and universal inflammation of the peritoneum, and the almost certain death, which the escape of the contents of the alimentary canal into that serous bag would infallibly occasion. The foot *mortifies*; is killed by injury or by exposure to cold:—inflammation, if it be not anticipated by the knife of the surgeon, will cut off the dead and useless part. An abscess forms in the liver—or a large calculus concretes in the gall-bladder: how is the pus or the stone to be got rid of? If they make their way to the external surface of the organ, as they always tend to do, they enter the cavity of the abdomen, and excite fatal peritonitis. But a natural safeguard arises; partial inflammation precedes and prepares for the expulsion; the liver or the gall-bladder, as the case may be, becomes adherent to the walls of the abdomen on the one hand, or to the intestinal canal on the other; and then the surgeon may plunge his lancet into the collection of pus—or the abscess or the calculus may eat their own way safely out of the body—through the skin, or into the bowel. Inflammation, limited in extent and moderate in degree, becomes conservative by preventing inflammation more severe and more widely spread, which would be fatal. This is what I mean when I speak of the curative properties of inflammation; and surely this process, which may save life or destroy it, deserves and demands our most careful study.

But inflammation has a still farther and peculiar claim upon our attention. The salutary acts of restoration and prevention just adverted to, are such as *nature* conducts and originates. But we are ourselves able, in many instances, to direct and control the effects of inflammation—nay, we can excite it at our pleasure; and having excited it, we are able, in a great degree, to regulate its course. And for this reason it becomes in skilful hands an *instrument* of *cure.* This instrument the surgeon employs when, after letting out the water of a hydrocele, he wilfully excites inflammation of the tunica vaginalis, which obliterates its cavity, and renders the reaccumulation of the fluid impossible. It is by availing himself of the same agent that he is enabled to remedy many afflicting deformities:—to unite the cleft lip; to close up the fissured palate; to restore the dilapidated nose. There is no other special disease which is thus at our command; we cannot, if we would, produce a tubercle or a cancer. For all these reasons inflammation possesses a very high degree of interest for us—and for every one who would enquire, with any prospect of success, into either the pathology or the treatment of diseases.

Of the amount of our knowledge respecting the *intimate nature* of inflammation, I shall have occasion to say a few words by and by. We first become acquainted with inflammation in its symptoms, and as it displays itself externally. After we know what they are, it may be right, and cannot but be interesting, to enquire how they come about. Now the symptoms which, when they exist together in an external or visible part, betoken or denote inflammation of that part, are four in number: pain—redness—heat—swelling; *preternatural* redness, and *preternatural* heat. These, from the earliest ages, have been recognized as the signals of outward inflammation. "Notæ inflammationis (says Celsus) sunt quatuor—rubor et tumor cum calore et dolore."

No definition, however, or general description, can be made to embrace all the forms in which inflammation presents itself. We can give no useful account of it in the abstract; and therefore I shall first sketch the phenomena of inflammation under one of its most common external forms; and taking this as a type of the disease, proceed afterwards to trace its modifications and varieties, and to fill up the picture.

Let us suppose, then, that a healthy man receives some local mechanical injury—that he falls, for instance, against a window, and gets a piece of glass stuck into his arm. In a short time he begins to have pain in that part of the arm, and this is soon succeeded by redness, and increased heat, and swelling. The skin becomes of a bright red colour; the swelling increases. In the immediate place of the injury the swelling is firm and hard, and exquisitely tender: at some distance from that centre, although there is still swelling, the parts are softer and more yielding. In the seat of the redness and swelling the patient experiences a sense of heat, a burning pain; the part is sensibly hotter than natural to the touch of a by-stander; and if its actual temperature be measured by means of a thermometer, it will be found to exceed the temperature of the neighbouring surface. *The part is inflamed.* This is what is called phlegmonous inflammation. φλεγμονη is a Greek word, and *inflammatio* is a Latin word, and they both mean the same thing, viz. a burning, or a flame. Phlegmonous inflammation is therefore, in truth, a tautological phrase. But custom has assigned a particular signification to the epithet phlegmonous;—it denotes that kind of violent inflammation in which the inflamed part seems all on fire.

If the inflammation reach a certain degree of intensity, other signs of disorder present themselves at a distance from the injured spot. The patient usually at first feels chilly and feeble; but soon the temperature of the whole of the surface rises, the skin becomes hot and dry, the pulse more frequent and fuller and harder than is usual; lassitude comes on, and headache, and wandering pains in the limbs. The patient is unable or unwilling to exert himself, and finds that he is unapt for any mental effort; he cannot command his attention, gets confused and restless, and sleeps ill; he loses his appetite, his tongue becomes white, his mouth is parched, he is unusually thirsty, and the various secretions of the body are deranged and diminished.

This is *inflammatory fever.* This is an *indirect symptom* of inflammation, manifesting itself *through the medium of the system at large.* Various names have been given to this general disturbance of the vascular and nervous systems: constitutional disturbance — sympathetic fever — symptomatic fever. It matters little what term is used, provided that we affix always the same meaning to it: but inasmuch as the word *fever*, in this and in other languages, is taken to express a specific disease, it would perhaps be better to employ the term *pyrexia,* as Cullen and others have done, to denote that secondary febrile state which grows out of, or is associated with, primary local inflammation.

Now what is the end of this remarkable state of things? Why, it may end in one of two or three different ways. Supposing the piece of glass to be extracted, and proper measures to be taken for subduing the inflammation, or even supposing that no other measure is adopted except removing the bit of glass, then it will often happen that the phænomena just described will gradually recede and disappear; the pain will abate, the redness fade, the swelling diminish, the heat decline, the pyrexia cease; until the part at length regains its usual sensations and its natural appearance. When inflammation subsides in this way it is said to be *resolved*, to terminate by *resolution;* and this is its most favourable and desirable mode of terminating, whenever inflammation occurs as a morbid process.

But in many instances the inflammation does not thus subside. The irritant cause still remains in action—or the original intensity of the inflammation has been too great to admit of resolution—or the means proper to abate it have not been used—or have not succeeded. The symptoms already described continue, and are aggravated in degree: at length the swelling begins to assume a more projecting and pointed form, and the skin in its centre to look white; the central part of the swelling, formerly so hard, becomes softer—the pain is of a throbbing kind: a pulsative sensation, keeping time with the beats of the heart, is experienced in the part, and often a feeling occurs as if something had given way within it: at last (if art does not interpose) the cuticle breaks, and a yellow cream-like fluid is poured out, which we call pus, and upon its escape there generally ensues a considerable and speedy abatement of all the local symptoms of inflammation—of the pain, the heat, the redness, the tumor.

This is *suppuration.*

Meanwhile, especially if the suppuration be long continued, and the discharge of pus profuse, the character of the general febrile excitement undergoes a change. Slight but frequent shiverings, or feelings of chilliness, take place, followed by flushes of heat, which end in perspiration.

This is *hectic fever.*

If the injury has been still more serious, and the inflammation more intense, the part that it has invaded perishes by the violence of the disease; there is partial death. In that case the vivid red colour alters to a purplish or livid, or even a black, or greenish-black hue, the tension of the part exists no longer, the cuticle is elevated by a sanious fluid, the pain ceases, the part is devoid of all sensation—is dead and putrid, and exhales a peculiar and offensive odour.

This is *mortification.*

When the injury has been extensive, a corresponding and characteristic change is again observable, sometimes in the constitutional febrile disturbance. The patient grows more and more feeble, and delirious; he has involuntary startings of the tendons of the voluntary muscles—his pulse is weak and very frequent — his tongue becomes dry, brown, tremulous—his lips are black with accumulated sordes — his countenance is shrunk, haggard, ghastly—his stools and urine escape from him without his appearing to be conscious that they do so.

This is *typhoid fever.*

Under more favourable circumstances the dead or mortified part, which is called a slough, separates from the living parts, and leaves a breach of surface. The separation is effected by a vital process which is denominated *ulceration;* but which I need not now describe. The cavity thus formed gradually fills up, and heals in a peculiar way.

There is one other circumstance, not to be omitted in this rough outline of the local and general phenomena and effects of inflammation. If during its progress blood be drawn from a vein, it exhibits, after standing and coagulating, the peculiar appearance known by the name of the *buffy coat; i. e.* on the surface of the coagulum, and to a certain depth in its substance, the colouring matter of the blood leaves the fibrin, which is therefore seen of a yellowish hue, or buff colour.

Taking the preceding statement as a groundwork, let us look back upon it, and trace its particulars a little more in full. The four characteristic signs of inflammation being pain, heat, redness, and swelling, it will be useful to examine each of these symptoms more closely, in its turn.

The *pain* varies much in different cases of inflammation, both in degree and in kind. It is differently felt, *cæteris paribus*, by different persons, according to their natural susceptibilities. It varies from the slightest degree of sensibility to the utmost agony and torment Parts which, when sound, are endowed with little or no sensation (as tendons, ligaments, cartilage, bone), become often exquisitely sensible under inflammation. The organs of sense are variously affected in this respect: thus the specific sensibilities of the mouth and nose are blunted by inflammation—those of the eye and ear are often rendered painfully acute.

There are great diversities also in the kinds of pain. Sometimes it is of a dull aching character, as in toothache; sometimes it is a pricking, tingling, smarting sensation: this is the case in some forms of inflammation of the skin, as in erysipelas for example, and in herpes; sometimes it is sharp and piercing, as if the part were stabbed or cut with a knife—such is frequently the case in inflammation of the serous membranes, in pleurisy for instance; sometimes the pain is tensive or stretching;

and sometimes there is scarcely any pain at all. This last chiefly happens in the mucous membranes and in the parenchymatous texture of organs. Very often the pain is a ' bulking" or throbbing pain—every beat of the heart makes itself felt in the tender part. The pain of inflammation results, no doubt, from the implication of the nerves in the diseased process. The stretching of the vessels and textures adds to the pain. Every body who has been plagued by boils (and few escape them) has had proof of this: the pain is most harassing a short time before the ripening little tumor gives way, or is laid open by means of a scalpel; but as soon as the distension is thus relieved, perfect ease and comfort ensue. It is the same in common ear-ache. It is upon this principle, I believe, that the differences in regard to pain, which occur in different structures under inflammation, are partly to be explained. Speaking generally, there is more pain felt in external inflammations, and in the inflammations of *investing* membranes, than in inflammation of the substance of the viscera, or of the *lining* membranes: and it has been conjectured that this may be because, in the latter cases, the parts affected have fewer nerves of common sensation. But I do not think this explanation satisfactory. If it were well founded we should not have such exquisite pain in some of the textures already mentioned, which appear to be furnished with very few nerves of common sensation, and scarcely feel at all in their healthy state: tendons, ligaments, and cartilages, I mean. I think it will be found that most pain is felt in those parts which are least capable of yielding—in which the tension produced by the swelling, or the tendency to swell, is the greatest. The substance of the liver, spleen, and viscera generally, is soft and yielding — the mucous membranes are spongy in their texture, and often attached to the subjacent parts in loose folds, and they allow of an accumulation of blood within them without becoming much stretched, or very tense. The investing serous and fibrous membranes are more tightly applied, and much less capable of yielding: and their inflammation is usually attended with severe pain.

The pain that belongs to inflammation sometimes precedes any other apparent change. This is especially observable in respect to internal parts. Sometimes the pain is continued and uniform. Sometimes it is continued, but irregular in severity, having periods of great exasperation: sometimes again it is intermittent, and even periodic.

It is an unsettled question that has often been mooted, whether, in inflammation, the state of the blood-vessels is determined by that of the nerves, or the reverse. Mere nervous pains are known sometimes to be followed by congestion of the part in which they are felt. Whatever may be the true state of this question of priority, it is certain that the disordered condition of the blood-vessels, when produced, greatly augments the sensibility of the part. We may suppose that this depends, partly on over distension and stretching of the vessels and fibres, partly on pressure made upon the nerves by the swelling.

It is important to remark of the pain belonging to inflammation, that it is usually *aggravated by pressure:* frequently it is not felt at all, except when pressure is some how made upon the affected part—intentionally by the medical man—or accidentally, from the movements or position of the patient. This is *tenderness.*

And this is a point which requires a little farther notice. I say the aggravation of the pain by pressure is an important circumstance, because it continually helps us to distinguish pain that is inflammatory from pain that is not inflammatory. Thus pain of the abdomen may result from colic, or spasm—from a distension of the intestines by air, and a stretching of the textures and nerves belonging to them: and this sort of pain will mostly be relieved by pressure; you will find patients lying upon their bellies across the back of a chair for the sake of obtaining ease: but if the pain proceed, as it may, from inflammation of the peritoneum —oh! then the gentlest pressure, even that of the superincumbent bed-clothes, causes intolerable torture. The *suddenness* with which the pressure is made—and its being made on a *part* only of the suffering organ— these circumstances have much to do with the augmentation of the pain; and it is curious, and instructive too, to know that *gradual* pressure, applied *uniformly* to the *whole* organ or part under inflammation, is sometimes so far from enhancing the pain, that it relieves or removes it. Dr. Elliotson puts a very good case in illustration of this. "If (he says) you have a blister upon the sole of the foot, or at the ball of the great toe, and you rest gradually upon the part, the pain becomes mitigated, till at last it seems to be almost entirely removed; but the moment you take off the pressure, and raise the foot from the ground, you feel the part begin to throb—to throb with violent pain."

Now all this exemplifies what I said just now—that though a deranged condition of the nerves, marked by pain, may, for aught I know, first lead to the vascular fulness— yet that fulness, and the distension which it implies, will greatly increase the pain. In fact, the expulsion of the blood by means of well-regulated pressure is made the foundation of certain proposed methods of cure. This has been lately recommended in hernia humoralis, or swelled testicle—what is now more scientifically called orchitis. It gives one a sort of horror even to think of pressure being made on the healthy testicle—much more when it is rendered preternaturally sensible by inflammation: yet when properly managed it is said (by Dr. Fricke, of Hamburgh, and others) not to increase the pain, but entirely to remove it, so that the patient can at once walk about the room; and the disease is thus ultimately cured. In the same way it has been proposed to cure erysipelas, and gout, and rheumatism. I don't enter here into the expediency of such measures; but mention them in illustration of the various effects of pressure in various circumstances, upon inflamed parts. Certainly it must be dexterously and fortunately managed not to do harm; not to make matters worse; and if there be already much *extravasation* of any kind, I should think that pressure, however regulated, would be peculiarly likely to increase the pain and the mischief.

It is sometimes necessary to recollect, especially when the existence of internal inflammation is suspected, that all expression of the sense of pain, and probably all sensation of pain, may be prevented or abolished by the presence of stupor or *coma*. So also, if the nervous connexion between the inflamed part and the sensorium be cut off, no pain is felt. Limbs in a state of palsy are often (though not always) destitute of sensibility also; and inflammation readily occurs in them, but is attended with no pain.

That *mere* pain will not constitute inflammation must I think be plain to you. Spasmodic contractions of the muscles, stretching and tension of the tissues, a particular state of the nerves, and sundry causes that do not imply inflammation, may nevertheless be attended with severe pain.

Let us next consider the *heat*.

Of course, as I hinted before, this means *preternatural* heat: the temperature of the part exceeds that which belongs to it in health; but in truth, the heat is not in general so much increased as the sensations of the patient, or his heightened sensibility, would persuade him it is, or even so much as a by-stander might suppose. The heat of inflammation does not rise above the maximum heat of the blood in the central parts of the body. The natural heat of the blood is about 98 or 100°, but in fevers and inflammatory diseases it has been known to reach 107°, and the maximum heat of the blood in fever is probably the limit of the temperature as it exists in inflamed parts. The surface of the body, in its natural state, is not quite so warm as the internal parts, and the extremities are generally less warm than the trunk; so that the contrast between an inflamed and a healthy part, in respect to heat, is greater in the extremities than on the trunk. Thus if a blister be placed upon the chest, the heat of the part inflamed by its application will not exceed that of the neighbouring healthy surface by more than a degree or two; while a blister applied upon the leg may occasion a difference of 5 or 6°. John Hunter took great pains to ascertain the degree of heat produced in inflammation. He excited inflammation in the cavity of the thorax of a dog, and in the vagina and rectum of an ass, and he could not find that the temperature of the parts thus inflamed ever exceeded that of the blood at the centre of the circulation. He did not neglect the opportunities that came before him of making similar observations on the human body. He had occasion to tap a patient in St. George's Hospital for hydrocele: as soon as he had let the fluid out, he introduced a thermometer through the puncture made by the trocar, and placed it in contact with the testicle. He found the temperature to be 92°. He repeated this experiment the next day, when inflammation had set in, and then the thermometer rose to 98¼°. So that here an increase of 6¼° had taken place in consequence of the inflammation; but even this, you see, did not go beyond the natural warmth of the blood.

It may be presumed that the increase of heat depends mainly upon the increased influx of blood into the part. Possibly some vital actions taking place under inflammation tend to develope it, but it is a curious fact, a fact worth remembering, that the heat of inflammation does not transgress or surpass that of the blood in the central parts of the body.

Heat alone does not constitute inflammation, for parts of the body may be made preternaturally hot by holding them before the fire, by friction, by exercise, while there is no inflammation.

I apprehend that increased heat is essential to inflammation, in some stage or other of its progress, although there are cases in which the augmented temperature is not perceived or appreciated. Sometimes the increase of heat is very slight, and may be easily overlooked, there being nevertheless unequivocal inflammation; redness and swelling, which go slowly into suppuration. The heat is often concealed from the observation of the physician or the surgeon, by the situation of the part affected, and it escapes the notice of the sufferer, because the sensibility to heat is less generally diffused through the body than the susceptibility of common sensation. The heat of inflammation is usually less felt and less complained of by the patient than the pain. A vivid sensation of heat *is* pain.

The *redness* of inflammation must also be *preternatural* in degree, for many parts of the body are by nature, and in health, more or less red. This phenomenon depends upon the greater quantity of blood contained in the vessels of the part, and sometimes also upon the extravasation of a portion of the blood into the affected texture. There is more blood than usual in those vessels which naturally carry red blood; red blood enters too into vessels which in the healthy state are destined to receive and convey colourless fluids only, or which naturally admit *so few* of the red particles, that from their paucity, and the quickness of their motion, they cannot be seen. We are sure of this from what takes place in ophthalmia. Doubtless also the redness is sometimes increased by the formation of *new* vessels that admit the colouring particles of the blood in visible numbers.

That the vessels which naturally circulate red blood are actually distended and enlarged in inflammation, there can be no doubt. John Hunter (whose treatise on Inflammation is a mine in which all succeeding writers have dug) excited inflammation in one of the ears of a rabbit, and then killed the animal. He next injected the head and ears from the aorta, so that the fluid injected passing through both the carotids, was driven in equal quantities and with equal force towards each ear. The arteries of the inflamed ear were enlarged one-third beyond their natural size, and arteries in it were injected that were not visible in the sound ear. That the apparent increase in the number of blood-vessels is often owing to the circumstance that red blood enters tubes which already existed, but did not previously admit the colouring matter or did not admit it in sufficient quantity to be visible, is evident from the *rapidity* with which the redness may be produced in many textures: in the eye, for example, it may be effected in a few seconds; and many of the vessels which become suddenly apparent are evidently *continuations* of the trunks that could be seen before.

There is much variety in the tint of the redness of inflammation, depending on the kind and degree of the inflammation, and on the nature of the part affected. Sometimes the redness is bright and vivid, as if the part were full of arterial blood; this generally happens in the acuter forms and the earlier stages of inflammation. Sometimes the redness is dark, or livid, or purplish, more as if the part were gorged with venous blood: this occurs in some of the chronic and sluggish forms of inflammation, and it is often the case when there is a tendency to gangrene. Sometimes the redness is distinctly circumscribed, or in patches; and sometimes it is diffused in a general blush over a large space.

The redness may, and often does, remain for some time after the inflammation has ceased.

Now seeing that redness accompanies inflammation of the external parts, we presume that it exists also in internal inflammation: indeed we may convince ourselves that it is so. If a portion of intestine be drawn out through a slit in the parietes of the belly of a dog, and suffered to remain exposed to the air, it will soon inflame, and, inflaming, it grows red. We see also that internal parts are *left* red after death, which parts we have other reasons for knowing had been inflamed during life; and we infer that redness may have been present during life, although we find none remaining when the body is examined. That when it has been owing to mere fulness of the natural blood-vessels, it may disappear with parting life we know, because the same thing happens externally, as in erysipelas and scarlet fever: but in such cases the inflammation has not gone to any great height.

It is proper to remark that as the absence of redness is no proof that there has not been inflammation, so its presence is no proof of the contrary. There are many kinds of redness, both within the body and on its surface, that have nothing to do with inflammation: yet some of these are very apt to be mistaken for traces of inflammation. I shall endeavour to instruct you how to avoid such a mistake, when we come to examine the morbid anatomy of particular forms of disease.

While inflammation actually exists, redness, of some shade or degree, is seldom absent, even though the other symptoms may be scarcely apparent.

Lastly, let us take a glance at the *swelling*. This also depends, in part, upon the distension of the blood-vessels; but no great amount of swelling can be attributed to this cause; and as much as does proceed from it occurs *early* in the disease. A part also, and usually by far the greater part, of the swelling, results from the presence of matters poured out into the interstices of the affected part. These effused matters are of very different kinds, although they are modifications of the same liquid, the blood. I mentioned, in describing the condition of the part inflamed, that the central portion of the swelling is, at first, hard and resisting, while at a greater distance from the centre the swelling is softer, and yields more readily when pressed by the point of the finger, and sometimes even pits a little under that pressure. Now the central hardness is to be ascribed to an effusion into the cellular texture of the part, of a fluid, which, transparent at first, speedily becomes opaque and more consistent, and at last assumes a solid form: this is what is commonly called, in this country, coagulable lymph. The softer swelling at the circumference of the tumid part proceeds from the effusion of a thinner fluid, of serum, into the cellular tissue. Under very violent inflammation, blood in substance is poured out into the same parts. When the central portion of the swelling softens and becomes pointed, this part of the whole enlargement is owing to the presence of a quantity of pus. The different liquids that I have now been mentioning are of great importance, and play a conspicuous but diversified part in altering textures. Blood: serum: albuminous fluid or coagulable lymph: pus. They are called the *products* of inflammation. We are sure that inflammation has been at work if we meet with certain of these products. We are not sure there has been inflammation if we perceive mere redness:—we are not always sure if we find serum only:—we are not sure if we find blood alone:—we are tolerably certain if we discover pus; we are certain at least that there has been inflammation *somewhere*, though doubts have been started whether the pus is not sometimes conveyed from an inflamed part to other parts of the body. We are *quite* sure that there has been inflammation in a part if we find coagulable lymph in that part. This often remains, as a monument of the inflammation, during life: it frequently becomes organized, furnished with blood-vessels, and a great number of changes, some reparative, some morbid, depend upon its presence. I shall have to recur to these *products* of inflammation hereafter.

The degree of swelling in different cases depends partly on the intensity of the inflammation, partly on the nature and texture of the structures affected.

I need scarcely observe that swelling may exist without any inflammation. Hernia, simple anasarcous enlargements, dislocations, will occur to you as every-day examples of swellings that have no necessary connexion with inflammation.

On the other hand, inflammation may exist without any *appreciable* swelling. Inflammation of the sclerotic coat of the eye, for instance, may be present, without any swelling cognizable by our senses.

We have seen, in this review of the symptoms of inflammation, how much they severally depend, the pain, the swelling, the redness, and the heat, upon the increased influx of blood *into* the part.

It may not be uninteresting to pause here for a moment to enquire what has been ascertained in respect to the actual condition of the capillaries of an inflamed part, and of the blood they contain. Much has been learned on these points by patient and minute observation with the microscope, and by reasoning upon the facts thus brought to light. Kaltenbrunner, Gendrin, Müller, and others, have corrected many erroneous notions which formerly prevailed upon this subject.

In order to comprehend the minute phænomena of inflammation, you must have a clear conception of the constituent elements of the blood, and of the main changes it is liable to undergo. The rough anatomy, rather than the chemistry of the blood, is what I allude to.

The blood consists of red particles, or globules, and of a transparent colourless fluid called lymph, or liquor sanguinis. Müller succeeded in separating these two constituents of the blood by filtering through paper that of a frog, which contains very large red globules. The liquor sanguinis thus obtained separates spontaneously, by coagulation, into two parts, into serum and fibrin, the last having previously existed in solution in the liquor sanguinis.

When the coagulation is suffered to take place without any attempt to remove the red particles, these are entangled and enclosed in the fibrin as it becomes solid; and the common well-known appearance of clot and serum occurs. You may even then wash out the red particles from the clot, and leave the fibrin.

I must now recur to the experiments and observations of Kaltenbrunner. I should have told you, on a previous occasion, that various stimulant substances, mechanical or chemical, when applied to the web of a frog's foot, will produce irregular disturbances in the circulation, which irregular disturbances you are not to confound with true congestion: in like manner you must avoid confounding them with the phænomena of *inflammation*, which are always preceded by those of true congestion. Kaltenbrunner found likewise, that (just as in congestion) a certain interval of time generally happened between the application of the exciting cause and the apparent development of the inflammation. This accords with what we observe to be the case in respect to local injuries, and to those local internal inflammations that are apt to be produced by exposure to cold. There is a pause before the mischief lights up: or (to take the metaphor from the eggs of birds) there is a period during which the inflammation seems to be hatching, and it is called accordingly a period of *incubation*. Kaltenbrunner describes inflammation to be a regular process—as he had also described congestion to be.

On looking then at the web, to which some violence had been done, he observed, after the first irregular disturbances were over, and when the period of incubation had elapsed—he found (I say) that an afflux of blood took place to the part about to be inflamed: the velocity of the blood in the vessels was greatly accelerated; the vessels themselves were distended and tense, and therefore disposed to tighten upon the blood they contained—the functions of the part, that is to say, the secretion and absorption of lymph, were interrupted; the blood underwent an evident change—or it failed to undergo the proper changes: its globules stuck together, and the parenchyma of the web became tumefied. Now all this is just what I represented to you in a former lecture as constituting the state of the blood-vessels under *active congestion*: and I also told you, at that time, that such congestion was just one step short of inflammation. The congestion now described increases, until, at length, this remarkable alteration happens: the capillary tubes, instead of tightening upon their contents, dilate, or grow larger; the circulation, at first so rapid, begins to be *delayed* in some of the capillaries; the direction of its motion becomes uncertain; it oscillates, as it were, irregularly in those vessels, and at last stops altogether, the globules cohering in irregular masses, and thus *points of stagnation* are formed; and these points of stagnation, if the affection goes on increasing, augment in size, and multiply in number. Around them, beyond their circumference, the circulation remains still very rapid, and the congestion persists. This is *inflammation*—of which the characteristic or pathognomonic feature is the formation of these *points of stagnation*.

Now one early consequence of the stagnation of the blood is, that a portion of it transudes through the sides of the vessels containing it: the serum; or the liquor sanguinis; or even sometimes the blood itself, red particles and all. The effused serum remains, or is absorbed, as serum. The fibrin, when it has so transuded, concretes, and thus the interstices of tissues are filled up, and layers of coagulable or coagulated lymph are formed upon the surfaces of inflamed parts, constituting false membranes; and under certain circumstances, already adverted to, other, or farther, changes take place: the red particles which have passed into the inflamed tissue, or which still remain stagnant in the capillaries, undergo a remarkable transformation, lose their coloured capsules, become yellow, grow larger, and are converted into globules of *pus*. So that pus is nothing else than altered blood.

But pus appears also to be formed in a more rapid manner, by a sort of secretion: it almost streams, sometimes, from the surfaces of mucous membranes. It has lately been affirmed that certain globules, visible in blood drawn during health, and larger than the rest, are pus-globules; and that under inflammation these pus-globules multiply some how. The question must be regarded as *adhuc sub judice*.

Certainly much which used to be thought mysterious in the process of inflammation has been rendered more simple and intelligible by modern research. Most of the events or consequences of that process are traceable to the stagnation of the blood in the capillaries, and to the changes which the stagnant blood subsequently undergoes.

I must not omit to tell you what Kaltenbrunner says about the direct absorption that takes place in the inflamed part. He found that the *colouring* matter, and the *adipous* matter, were thus taken away. The web of a frog's foot is speckled over with little stars of five rays, caused by a black pigment. The extremities of these rays gradually disappear until mere black points are left in the places of the stars. He says that he has been lucky enough to catch the exact moment when the blood, circulating rapidly in the canals, has detached a particle from one of the rays, and carried it into the torrent of the circulation. In the sound state, the mesenteric vessels of the rabbit are surrounded with much fat. When the mesentery is inflamed, the adipous cells soon empty themselves: a number of capillary canals develope themselves on the walls of those cells, and it is probable that the fat is carried off by the blood circulating in these canals.

Another curious and interesting sight witnessed by Kaltenbrunner was the formation of new blood-canals. He says that in an organ recently inflamed, when the circulation is accelerated, globules of blood may be seen to sally, all of a sudden, from some capillary, pass into the surrounding parenchyma, force themselves a channel, and reach another capillary canal. Thus a new capillary channel is formed; the blood circulates through it; its formation is often the work of a few seconds only. As the same thing is repeated in different parts, a rich net-work of new capillary canals is added to the original set, whereby it happens that organs which in the sound state are but slenderly furnished with capillary vessels (as the mesentery of the rabbit) present an astonishing number under inflammation.

While new capillary vessels form, the old ones dilate, and assume the appearance of small arteries or veins according as they are continuous with the arteries, or border on the veins.

The fact has long been known that when coagulable lymph has been poured out, in inflammation, blood-vessels gradually form in it, whereby it obtains a vascular connection with the surrounding textures, and becomes a living portion of the body: and these microscopic disclosures of the manner in which they form appear to me to possess a peculiar interest.

I should be making a very wasteful use of your time and of my own, if I entered into the undecided and unprofitable disputes that have been raised respecting the vital conditions of the vessels engaged in inflammation. While some have pretended that the action of the small vessels is increased, others assert that it is diminished; that the vessels are in a state of atony. For my own part I have never yet seen any conclusive evidence that the small vessels possess any vital contractile power distinct from their elasticity. And granting them such a power, it is extremely difficult to conceive how any increase in their vital contraction should produce the changes that are observed in inflammation. Certainly we have no warrant that any such contraction takes place, in the results of microscopical examination of the vessels of an inflamed part. The inquiry might be more properly directed, I think, into the vital conditions of the *nerves* of the part: but here we are wholly in the dark.

I do not think it so evident as some have supposed it to be that a greater quantity of blood than is natural passes through an inflamed part in a given time. It is quite true—and it is proper that you should be aware of it—that the arterial trunks leading to an inflamed part often pulsate with more than ordinary force, and, if opened, project a jet of blood farther than they would naturally project it. It is true also that a venous trunk leading from an inflamed part will discharge a greater quantity of blood in a given time than a corresponding vein leading from a sound part. Mr. Lawrence declares that he has frequently tried this experiment, and always with similar results. He has found it necessary to bleed a patient whose hand and forearm were inflamed; and he has opened a vein in each arm, and has found that within the same space of time, the two veins being opened at the same moment, about three times more blood flowed from the vein of the inflamed limb than from that of the sound. But it scarcely follows from this that more blood circulates through the part actually inflamed: the activity of the circulation in the vessels that remain pervious, and are merely congested, around the focus of inflammation, is greatly increased, and more blood circulates through the *limb*: and yet the blood may be stagnant, or scarcely circulate at all, in the very part that is strictly and truly inflamed. However, the fact of this increased afflux of blood towards the parts concerned in the inflammatory process is an important one.

PAROCHIAL MEDICAL RELIEF.

At the meeting of the Provincial Medical Association at Southampton, Dr. Hastings read a letter which had been addressed by Serjeant Talfourd to Mr. Rumsey, of Gloucester, in reference to the learned Sergeant's proposed bill on the subject of Poor Law Medical Relief. It was as follows:—

Sergeants' Inn, 13th July, 1840.

"My dear Sir,—I send you the clauses which, on the best consideration I have been able to give their subject, seem to me desirable, as additions to any bill which may be introduced by the Government for amending the laws for the relief of the poor. The determination of ministers, founded on the state of public business, to postpone the consideration of the bill which they had brought in to another session, has deprived me of the opportunity which, in accordance with my notice, I should have embraced, of seeking to obtain for them *this year* the sanction of the House of Commons. The great difficulties which attend the progress through the House of any bill which is not sustained by official power or urged by party zeal—difficulties which have for four years prevented me from obtaining another object, although supported by large majorities, have induced me to regard the committal of a bill conducted by Government as affording a better chance for the due consideration of the claims of the medical profession than could be obtained by attempting a substantive measure; and as the short existence proposed for the commission-continuance bill seemed to me to render a proposal for adding these clauses to that bill inadmissible, I have seen no course open to me except to defer the introduction of the clauses until next session. Perhaps the delay may be attended with some compensations, as I have thought it expedient, in framing the clauses, to depart in some particulars from the propositions contained in my letter to you of August last, and it is most desirable that the amendments to be submitted to the Legislature should first be subject to the correction of the profession, whose feelings and opinions I have only to embody in form, and humbly to represent and enforce.

"Among the slighter modifications of the plan contained in my letter of August, you will perceive that I have not attempted to define by law the limits of remuneration to medical officers, within which the discretion of the Guardians may be exerted; but that I have been content to make it imperative on the Commissioners to issue orders from time to time, prescribing such limits, and to prohibit all attempts to obtain tenders. I have adopted this course after many and laborious endeavours at once to lay down rules and to leave necessary discretion to the Commissioners, both as to the amount and the mode of providing remuneration, which have convinced me that the attempt must fail. Perceiving, however, that there is little difference between the Commissioners and the medical witnesses respecting the amount of compensation and the proper mode of applying it, I hope the necessity of making orders on the subject will practically ensure the adoption of a course in accordance with the moderate and just wishes of the profession.

"In providing for the qualification of medical officers, I felt it just to exempt from the requisition of surgical honours the apothecaries who may be in practice at the time of passing the Act. I have been induced to recommend this exception by communications I have received from practitioners who pursue a laborious and honourable course, with only the apothecaries' license, in remote districts, and who have expressed painful apprehensions lest the obligation to employ a surgeon should compel the introduction of strangers to share their small and ill-remunerated practice, and whose fears have been expressed in a manner I could not resist. I have also forborne to embody the proposal I once made, that the Guardians should be compelled to prefer a party who had resided a certain time within the district, to a stranger, unless on reasons approved by the Commissioners; as I can conceive the existence of reasons justifying them in declining to engage such a resident, the statement of which might be very invidious and painful. But in this particular, as in all others, I shall be most happy to be instructed by the judgment and experience of your Committee, and, as far as possible, to meet their wishes.

"As the additions which have been made to the clauses since they were printed are chiefly intended to carry out important suggestions of your own, I need not trouble you with any explanation of their objects, but now leave you to decide how far the language I have used aptly represents your meaning, and is calculated to accomplish your purpose.

"I remain, my dear sir,
"Yours faithfully,
"T. N. Talfourd."

PROPOSED CLAUSES.

I. *A medical commissioner to be appointed in addition to the three Poor Law Commissioners.*

And be it enacted—That it shall be lawful for her Majesty, her heirs and successors by warrant under the royal sign manual, to appoint one fit person, being a physician or surgeon lawfully qualified to practise in physic or surgery, for a period of not less than five years, to be a Commissioner to carry into execution the Acts relating to the poor in England and Wales, in addition to the three Commissioners appointed under such Acts, and to be styled "The Medical Poor Law Commissioner for England and Wales," and also from time to time, at pleasure, to remove such Medical Commissioner; and, upon any vacancy in the office of Medical Commissioner, to appoint some other such person to the said office; and that the said Medical Commissioner shall be sworn, and his appointment notified in the manner prescribed in respect of the other Poor Law Commissioners; and that being so appointed and sworn, he shall attend at the meetings of the Poor Law Commissioners, but shall not have any voice at such meetings, except in matters concerning the medical relief of the sick poor, in which matters he shall have equal voice with such other Commissioners; and all rules, orders, and regulations relating to such medical relief shall be sealed or stamped with the common seal of the Poor Law Commissioners, and shall have the same force and effect, and be received in evidence in like manner with other orders, rules, and regulations, sealed or stamped with the said seal.

II. *The Medical Commissioner to settle the extent and boundaries of medical districts throughout England and Wales within three years, and submit the scheme thereof to a Secretary of State, to be laid before Parliament.*

And be it enacted—That the Medical Commissioner, with the aid and under the authority of the other Poor Law Commissioners, shall, after the passing of this act, proceed with all convenient dispatch to take into consideration the size and population of every district for the administration of medical relief throughout England and Wales, to be committed to the charge of a medical officer in order to settle the extent and boundaries thereof upon the scheme following; that is to say, that no district shall include a larger population than ten thousand persons.

That districts of greater area than eight thousand acres (about twelve square miles) shall not include a population of more than four thousand persons.

That districts of greater area than one thousand acres (about one and a half square mile) shall not include a population of more than six thousand persons.

That districts of area less than one thousand acres may contain a population not exceeding ten thousand persons.

And that the Medical Commissioner shall, within three years after the passing of this act, complete the regulation of all districts throughout England and Wales, and submit the scheme thereof, specifying the extent, and boundaries, and population of all such districts to one of the principal Secretaries of

State; and such scheme shall be laid before both Houses of Parliament within six weeks after the receipt of the same by such principal Secretary of State, if Parliament be then sitting; or if Parliament be not then sitting, then within six weeks after the next meeting thereof.

III. *The Medical Commissioner and Poor Law Commissioners to make orders and prescribe limits to the remuneration of medical officers, with power to suspend or vary such orders.*

And be it enacted—That the Medical Commissioner and the other Poor Law Commissioners shall from time to time make orders, whereby they shall prescribe limits within which the remuneration of medical officers may in every case be determined by the Guardians of every Union, provided always that it shall be lawful for the said Commissioners at any time to suspend or vary the operation of such orders in any particular case or cases, by writing under the hands of any two or more of them, of whom the Medical Commissioner shall be one.

IV. *Every medical officer to make an annual district report, and transmit the same to the Medical Commissioner, and the Medical Commissioner to make a general current report, to be annexed to the report of the Poor Law Commissioners, and laid with it before Parliament.*

And be it enacted—That the medical officer of every district shall, on or before the 25th day of March in every year after the passing of this Act, transmit to the Medical Commissioner a district report, stating the number of persons who shall have received medical relief during the preceding year within his district, the expenses of such relief, and the proportions and manner in which such expenses have been or will be defrayed, the distance of his own place of abode from the most remote inhabited part of his district, and if he shall not reside therein, in addition to such particulars as aforesaid, the distance of his place of abode from the nearest inhabited part of such district, and all such other matters as the Poor Law Commissioners shall by their orders from time to time require to be included in such district report.

And that the Medical Commissioner shall once in every year prepare a general report, comprising the substance of such district reports, and all proceedings of the Poor Law Commissioners relating to medical relief in such year, and cause such general report to be annexed to the annual report of the Poor Law Commissioners, in order that the same may be submitted therewith to one of the principal Secretaries of State, and laid therewith before both Houses of Parliament.

V. *Guardians to determine the amount of remuneration to be received by medical officers, subject to the orders of the Commissioners, but not to advertise for or seek to obtain tenders.*

And be it enacted—That the remuneration to be received by medical officers shall in all cases be fixed and determined by the guardians of the poor of every Union, according to their discretion, subject to any limitations and directions which may be contained in the orders of the Commissioners, and that such guardians shall not attempt, by advertisement or other public notification, or in any manner whatsoever, to obtain tenders or offers relating to the remuneration to be given for the performance of the duties of such medical officers.

VI. *Qualification of medical officers.*

And be it enacted—That no person shall hereafter be eligible to receive the appointment of medical officer of any district not being duly qualified to practise as a surgeon and physician, or as a surgeon and apothecary, unless he shall be in actual practice as a surgeon or apothecary at the time of passing this act; and that no person shall be so eligible until he shall have been in surgical or medical practice for three years.

VII. *The expense of medical relief to be a parochial charge.*

And be it enacted—That in all cases the expenses of medicines and administering medical relief shall be borne by the respective parishes in or of every Union, in proportion to the expense incurred on behalf of the parishioners of each parish who shall receive such relief.

ON THE
STRUCTURE OF NORMAL AND ADVENTITIOUS BONE.

To the Editor of the Medical Gazette.

Sir,

The inclosed paper contains the result of observations on the structure of bone, made at various times during the last three years. It was read before the Royal Society last winter, and I have now added here and there new matter from my physiological note-book.

I remain, sir,
Your obedient servant,
Alfred Smee,
Surgeon to the Bank of England, and to the Provident Clerks' Mutual Benefit Association.

Bank of England, Oct. 27th, 1840.

The intimate or microscopic structure of bone has been the subject of much investigation both in this country and abroad, yet there still appears to be much scope for farther discoveries. To the uninitiated the structure of bone under the microscope is one of the most splendid sights possible. To the initiated, though he may often have participated in the pleasure of examining, it yet the beautiful arrangement never ceases to afford the greatest delight.

The best mode of preparing the sections of bone is to cut portions, of a convenient thickness, with a saw, and then to rub one surface quite smooth on a hone, and afterwards to polish it upon a piece of leather; a slip of glass is then to be obtained, and one or two drops of balsam of Canada are to be placed on one surface: the polished side of the bone is to be put on the balsam, the glass is to be heated, which melts the balsam, and causes it, when cool, to fix the section firmly on the glass. The next operation is to polish the opposite side of the bone, and render it sufficiently thin to be translucent, which is to be effected either by grinding it upon a hone, or, if the section is very thick in the first instance, by filing the bone down to the required thinness; lastly, the specimen is to be polished as before. Occasionally the structure is best seen by scraping down the bone, but this is a tedious operation, and seldom required.

The sections by these processes are made extremely thin, and are now fit for examination by the microscope. The canals of Havers are seen conspicuously when the bone is moderately magnified. They are irregular canals running for the most part in the direction of the long axis of the bone, and frequently anastomosing with each other. They are frequently seen to arise either from the external or internal margin of the bone.

Around these canals are small irregular bodies, arranged in circles, and having the surfaces parallel to the long diameter, looking towards their several canals. Apart from these series of corpuscules, attached to the Haversian canals is a row running round both the exterior edge of the bone and the edge of the medullary cavity. These run round every filament of the cellular tissue of bone, which, unless any portion happens to be very thick, has more of the Haversian canals.

A junction is effected between the corpuscules and the Haversian canals, and also between corpuscules and the margins of the bone, by numerous little fine lines which communicate in every direction with the neighbouring corpuscules. These fine lines also connect the corpuscules of the extreme circles round each Haversian canal with the corresponding corpuscules of the neighbouring canal. Between the system of corpuscules surrounding the Haversian canal there is no row taking the general direction of the bone, as some have asserted.

If the Haversian canals are examined in a recent subject, where the capillaries are well filled with blood, they are observed to contain vascular tubes, and the blood can be distinctly recognised in them. To ascertain this fact it is better that the bone be scraped, and no heat applied to fix the bone to the glass.

The corpuscules are arranged around the Haversian canals in a series of rows proportionate to the size of the canals: thus a small canal has one, two, or three rows round it, while a large canal has five or six rows. It is to be noticed that the rows around the medullary canal and external edge of the bone seldom exceed two or three series.

An opinion is very prevalent amongst physiologists that these little bodies are solid; and many consider that they consist of the phosphate of lime and earthy matter of bone; but this opinion appears to be incorrect, from viewing sections of bone under different circumstances.

A similar opinion has been entertained of the fine lines running from the corpuscules, which have been termed the calcigerous tubes, but I would suggest the name of corpuscular lines or tubes, as the truth of this will be shown presently.

When a section of fresh bone is examined, these bodies appear opaque as well as their lines; but when a section from the same bone is thoroughly boiled in balsam of Canada, the balsam enters the canals of Havers, the corpuscular lines disappear, with few exceptions, and some of the corpuscules become transparent and nearly invisible, and others partially transparent. The same effect has been produced by our forefathers in their process of embalming; for in the tibia of a mummy, which I possess, the corpuscules are transparent, and most of them are decidedly filled with a yellow matter similar to that which exists in the blood-vessels. The corpuscular lines are so translucent as to be scarcely visible. In this case the canals of Havers were also filled with yellow matter.

When the section of recent bone is ground down to the utmost possible limit, the corpuscules either appear as a transparent irregular oval ring, or they have the appearance of containing some shrivelled matter in their interior. In these cases the section of bone is only a portion of corpuscule in thickness.

The corpuscules with the lines are exceedingly opaque when a section of bone is examined in which the canals of Havers are filled apparently with adipocire, which occasionally happens after maceration.

If a thin section of bone is thoroughly calcined, then soaked in oil, and afterwards carefully ground down extremely thin, the canals of Havers, the corpuscules, and corpuscular canals, will be quite visible in the substance of the bone.*

When the earthy matter is removed from calcined bone, the corpuscular lines disappear, but the corpuscules themselves, though transparent, are still visible.

In these instances the examination has been made by transmitted light; but differences, according to circumstances, are seen when the object is viewed by light thrown on the surface. The corpuscules with the lines appear white when a thin section is examined with a dark ground underneath it; but a thick polished piece of bone, or a section of bone with a portion of white paper underneath it, does not present these appearances. The reflection of light from the deeper corpuscules is the reason why the corpuscules are not apparent in a thick section, nor when white paper is placed underneath one of greater tenuity. Those corpuscules which present a transparent ring by transmitted light still appear white when viewed by reflected light, for some are seen as white rings on a black ground, and others as rings having a little irregular white matter in the centre. The whiteness of the corpuscules is owing to the reflection of light from the surface of the corpuscules, whilst between them it passes to the back, and is absorbed. The same effect is produced when a piece of black cloth or scratched glass is viewed under similar circumstances, in which cases the elevations on the one and the depressions in the other appear white.

If, however, the piece of mummy bone before mentioned be examined by reflected light, the transparency of the corpuscules allows the light, in some degree, to pass, and that part which is reflected appears of the same yellow colour as when the section is viewed by transmitted light.

Such are the principal circumstances which modify the appearances of the corpuscules, and which may be thus summed up: first, that the earthy matter is associated with the animal matter, and pervades every part of the bone, which is shown in the section of burnt bone; secondly, that the corpuscules may exist without any earthy matter being there, as in the cartilage of the shark, or the animal matter of bone which is left after maceration; thirdly, that the corpuscular canals communicate with the Haversian canal, as the specimens boiled in Canada balsam prove; fourthly, that the corpuscules present themselves under two circumstances, for they are either opaque, as in recent and adipocire bone, or transparent, as in those boiled in balsam of Canada, as are also those of the mummy bones.

All these facts shew that the corpuscules and corpuscular lines are themselves cavities into which the various substances enter. We have already mentioned that, in the bones of mummies, a yellow matter is found in the corpuscules similar in appearance to that filling up the Haversian canals. That they are cavities is farther proved by the corpuscules appearing as rings when the section is reduced to extreme tenuity.

Attempts were made to fill the cavities with a coloured substance by various methods, such as had been effected in the bones of the mummy, but watery solutions penetrated only for a short distance into the Haversian canals, so that double decomposition of ferrocyanate of potass and sulphate of iron were found to be useless.

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* The labour and care required to make these specimens are very great. It is better to calcine a thin section in a crucible, over a hot fire, then to place it in oil, and keep it there for a very long period, when it may be fixed to the glass with balsam of Canada. No heat should be applied, but it must be allowed to remain till it spontaneously dries, when its thickness may be further reduced and gently polished.

Balsam of Canada and dragon's blood were melted together, and pieces of bone were then boiled in the mixture. On the examination of thin sections of this, the Haversian canals were found filled with the compound, but whether it entered farther I could not so satisfactorily make up my mind as to enable me to state the fact positively, but, upon the whole, after numerous examinations of various specimens prepared in this manner, it may be stated that there was an appearance in those corpuscules, immediately surrounding the canals, of its having penetrated the cavities; but, perhaps, the facts already adduced require no confirmation.

Having proved by the results of direct observation that the corpuscules are cells, and, therefore, ill named corpuscules, but better cellules, their use is the next point which demands our notice; but this will probably be for ever theoretical. Perhaps they act the same part to compact tissue of the bones as cells do to the cellular, namely, that of giving lightness without materially diminishing their strength.

What the particular structure of the bone is between the corpuscular lines and corpuscules there appears to be no means of ascertaining; for the highest power in the thinnest section only exhibits a transparent homogeneous texture.

Whether the corpuscular tubes contain blood perhaps we may also for ever be ignorant, but, considering that they communicate with decided blood-vessels, this opinion is far from improbable. It is certain they are much too small to carry the globules, but the opinion of their being blood-vessels may receive additional weight from the fact that in bone there are no canals smaller than the Haversian.

The size of the corpuscules or cellules is about equal to two or three globules of blood; they appear for the most part broader when viewed in a section parallel to the Haversian canals, than when seen in a section perpendicular to them: if it is really the depth which is seen in the longitudinal section of bone, it follows that these little bodies are deeper than they are broad, and we have already noticed that their length is much greater than their breadth. I conceive that the form of the corpuscules may be exactly given by taking a piece of wood twice as deep as it is broad, and twice or three times as long as it is deep, and then rounding off all its angles. Sections in different planes through this would present every form which is observed in the corpuscules.

Thus we have seen that the structure of bone is extremely simplified, as there is a medullary cavity, from which spring the corpuscular tubes, and three or four layers of corpuscules or cellules around it. The same is seen with regard to the exterior part of the bone. Between these two layers run tubes for blood, irregular as to size, frequently anastomosing with their neighbours, and having the general direction of the bony tissue in which they are imbedded.

Radiatory lines are spoken of by some as existing round the Haversian canals, but they have no real existence, and are only the corpuscular canals or lines seen deep in the section, and out of focus; and they are only to be seen when these lines are opaque, and the section thick.

The cellular tissue of bone has no Haversian canals; for there the cells have the same relation to the bony structure of each cell as the Haversian canal has to the bone immediately surrounding it.

With regard to the laminæ of bone which have been described by other authors, they appear to me to exist only as the result of the ingenuity of the anatomist, for we see that the shaft of a long bone consists of a large medullary cavity, with a series of corpuscules and corpuscular lines, and a number of Haversian canals containing blood, with their series of corpuscules around them. Now if a bone has long undergone putrefaction, it can be torn precisely in this manner. It will, in fact, tear to shreds, and a transverse section of each of these shreds shows the Haversian canal in the centre, and the corpuscules around it.

The corpuscules are to be seen in every true bone of the body, and form a good criterion to distinguish bone from other tissues. It is worthy of remark that but little difference exists between the structure of different bones, and even the intense hardness of the temporal bone immediately surrounding the semicircular canals presents no microscopic difference to account for that peculiarity.

The changes which bones undergo in the interior of the earth are very interesting. They may have their animal matter entire; they may have the animal matter removed; they may have the earthy matter partly removed; or, lastly, the animal matter may be carbonized.

The bones which exhibit the animal matter entire are those which have lain in certain situations not exposed to the air. I find them in this state from Beg Bone Lick, in Kentucky; and I have sections of the bones of the mastodon from thence, shewing the structure in the most beautiful manner. Some bones found in making a sewer behind the Bank of England, together with Roman sacrificial utensils, were in a similar state. In both these instances, as well as in others, the Haversian canals appeared to be full of black matter.

The relation which the proportion of animal matter bears to the earthy, I have examined by calcination in twenty different species. The bones were all well macerated, and not greasy. The proportion in these varies but little one way or another, and that more from the state of the bone than any thing else; for the average is as near as possible sixty per cent. of earthy material.

When the animal matter is removed we may always venture an opinion that the bone has been imbedded in a sandy or gravelly stratum. In every churchyard with this soil, that I have examined, bones have been found with the smallest trace of animal matter, and others not so far advanced in decomposition have been noticed. Many fossil bones possess their phosphate of lime, with so little animal matter as scarcely to be coloured by heat. None of the bones without animal matter can by any contrivance whatever be made to show the corpuscular structure, although the Haversian canals are distinct to the naked eye, and the general appearance of the bone is not materially altered, except perhaps being white, and of a somewhat mineral aspect.

The next division is that in which the animal matter is too abundant, part of the earthy matter having been removed. This condition is rare, and in these cases the bone will tear into shreds, each containing its Haversian canal and series of corpuscules. I do not know under what conditions this takes place.

The last change is the conversion of animal matter into bitumen or carbon. This change is common to the blue clay and blue lias, as here the bones retain their usual quantity of phosphate of lime, but their animal matter is converted into coal. This alteration appears quite unconnected with heat, and takes place as a spontaneous change in a moist situation, to which no air has access. I have seen different bones in every transition of this change from different situations; they mostly show not only the Haversian canals but even the corpuscules.

We have next to examine adventitious bone, which may be arranged under the heads—reproduction of bone, growths from bone, and ossifications of other tissues. Of the former a piece of callus from a simple fracture was examined, and was not found to differ in any respect from true bone; it had the cellules with their lines, and the Haversian canals, precisely as normal bone. The same thing was noticed in a section of callus from a compound fracture. The new bone after necrosis, or even the necrosed portion, exhibited no diversity from this structure. The reproduction of bone is particularly interesting, as the new deposit is precisely the same as normal bone, with almost all the tissues: the reproduced part widely differs from the normal tissue.

Of the different growths from bone, a piece was examined which had been thrown out from two anchylosed vertebræ for additional strength, and this presented the appearance of true bone.

Hard bony exostoses were examined with exactly the same result.

Ossifications may be divided into two classes—bone of cartilages, and bone of other tissues. Ossifications of the thyroid and corocoid cartilage in the human subject were examined, and both presented the cellules, and the former the Haversian canals not at all different from recent bones.

The human trachea is not in general sufficiently ossified to show the corpuscules of the natural size, for in partial ossifications large cells are seen, but a section of a small part showed these cellules of the size natural to bone. The trachea of the macaw, and the inferior larynx of the widgeon, which are naturally bones, also present no difference from the general appearance of bone.

Examinations of the structures of the costal cartilages when ossified were attended with like results.

The ossification in the thyroid ligament was examined, which showed here and there the cellules.

The fibrous membranes when ossified do not generally exhibit this structure: in fact, we may say never, unless they be connected with bone. A portion of ossified tendon attached to bone was examined, which had these cellules differing in no respect from bone.

A section of a fibrous tumor of the uterus was examined. This had the fibres running in the osseous matter, but no cellules nor anything like cellules could be discovered.

Of the serous membranes, the pleura is sometimes ossified, but that appears to be only a deposit of irregular granules, and no structure could be detected.

The arterial tissue is frequently ossified, and then its appearance is similar to that of the pleura; it displays a granular mass and no cellules.

Thus we may state that ossifications are of two kinds: first, that of true bone, which, in a word, always exists when any enlargement of bone in any way takes place, either as an ossification of the neighbouring tissues, or in any other way. Secondly, ossification of the tissues not at all related to bone, which presents nothing but a mass of granules.

The structure of bone from a very old person was examined, which, after six weeks, had made no effort at reparation, but no difference could be detected.

A section of a femur was examined, in which the head of the bone was affected by scrofula, but no change could be detected in the cellules.

A transverse section of enlarged femur had the cellules in the enlarged part, but in this case the canals of Havers did not run in the direction of the long axis of the bone, but ran from the exterior edge.

The structure of bone and that of the cellules have been examined in numerous specimens of recent bone from different parts of the body. The long, the round, the flat, the sesamoid bones, have all received their share of attention, and these, with macerated bones, mummies' bones, bones altered by chemical agents, diseased bones, and ossifications connected with cartilage or bone, possess these cellules.

The bones of animals and of birds which have been examined also possess them. The bones of some fish, as the sturgeon and porpoise, and the ossific plates or the skin on the former, agree in possessing these cellules. Even the cartilaginous fishes are not destitute of them.

The structure of bone is not only such at the present moment, but has been the some from earliest period, for the mighty ichthyosaurus, the tyrant of the water in former ages, and the vast mastodon, the giant of the land, possessed these cellules. Although six thousand years had elapsed before the microscopic structure of bone was made known to the anatomist, yet in every age, in every country, geological and antiquarian researches have revealed that the same structure has existed. The imperfection of our instruments has been the cause of our previous ignorance, and doubtless there is now ten times more to be learned than is already known.

In every case where the corpuscules or cellules exist, they can be distinctly perceived to be hollow. Let, therefore, the universality of this fact be the only apology for its communication.

For the following measurements I am indebted to the kindness of Mr. Bowerbank:—

Haversian canals.

Small.	Large.	
$\frac{1}{303}$	$\frac{1}{500}$	in diameter.

Corpuscules or cellules seen in a transverse section.

One of the largest.

Diameter $\frac{1}{4098}$ Length $\frac{1}{1445}$

One of the smallest.

Diameter $\frac{1}{9346}$ Length $\frac{1}{2353}$

Longitudinal section.

One of the largest.

Diameter $\frac{1}{2024}$ Length $\frac{1}{727}$

One of the smallest.

Diameter $\frac{1}{4166}$ Length $\frac{1}{837}$

STATISTICS OF SMALL-POX.

To the Editor of the Medical Gazette.

SIR,

THE second report of the Registrar-General contains a letter from Mr. Farr, which, besides other interesting matter, details the principal results of the great variolous epidemic which pervaded England and Wales in the years 1837, 1838, 1839, having its climax about the month of May 1838. To these statistical details, arranged in a manner the most complete that can be desired, and presenting indeed the beau ideal of statistical perfection, Mr. Farr appends some very instructive suggestions regarding the causes of epidemic prevalence, and the laws which appear to regulate the phenomena of epidemic culmination and decline. I should have been gratified by finding such valuable matter transferred bodily to your columns; but as you may have been deterred from this by the minuteness of many of the details, and the length to which the observations extend, I have thought that a short notice of the principal facts, drawn up rather with a view to popular instruction than to satisfy the cravings of a professional statist, might not be unacceptable to your readers.

The recorded facts extend from the 1st of July, 1837, to the 31st of Dec. 1839. These two and a half years are subdivided into ten quarterly periods. One table (table P), occupying sixteen octavo pages, exhibits the total amount of deaths by small-pox occurring during this long period, in each of the 324 divisions into which England and Wales are divided for the purposes of the Registration Act. The general results may be conveniently summed up in the following words:—

There died in the summer quarter of 1837 by small-pox throughout England and Wales 2513 persons. In the last quarter 3289. Total in the last six months of 1837, 5802.

There died of small-pox throughout England and Wales—

In the first quarter of 1838,	4242
In the second do. . . .	4489
In the third do.	3685
In the fourth do. . . .	3851
Total . .	16,267

There died of small-pox in like manner

In the first quarter of 1839,	2982
In the second do. . . .	2505
In the third do.	1533
In the fourth do. . . .	1730
Total . . .	8750

Total deaths in the two and a half years, 30,819, giving for this period an average of 12,200 deaths per annum. As the rate of mortality during these three years has ruled about 20 (or from that to 25) per cent., it follows that in the course of one epidemic, extending through thirty months (that is, between the 1st of July, 1837, and the 31st of December, 1839), there occurred in England and Wales not less than one hundred and fifty-four thousand cases of small-pox. This statement is certainly rather startling, and shews how greatly some of our predecessors had over estimated the probable results of the Jennerian discovery.

From the preceding facts it will be seen, that the epidemic reached its maximum of intensity in the spring quarter 1838, and that its decline exhibited irregularities; the fourth quarter of both 1838 and 1839 shewing a slight increase over the preceding quarter. The epidemic commenced in the western shore of the island: Liverpool, Bath, and Exeter, being the towns that chiefly suffered in 1837. The metropolis and the southern counties were the chief seats of the epidemic in the early part of 1838. At Manchester and Leeds the epidemic was at its height in the last quarter of 1838; the former town returning 180, and the latter 197 deaths between the 1st of October and 31st of December, 1838.

In the early part of 1839, the eastern portions of the kingdom experienced their share of the malady. Norwich returned 384 deaths in the first half year of 1839. The disease having made a sweep round the island seems to have returned again to its first haunts, for at Liverpool 138 deaths occurred in the last quarter of 1839; at Salford 80, and Bradford 80. The total deaths in Lancashire mounted up to 446 during the same period, having in the spring (or second) quarter been returned at 179 only.

Your readers may perhaps be interested by some more minute details with reference to this epidemic, as it occurred in the metropolis. It will be borne in mind that the metropolitan Districts, in the Registrar-General's books, extend over an area of 70 square miles, and were estimated to contain in 1838, 1,884,844 inhabitants. The deaths by small-pox in the metropolis in the period comprised in the returns may be exhibited in the following table:—

Table shewing the deaths by small-pox in London between the 1*st of July,* 1837, *and the* 31*st of December* 1839.

Metropolis.	Deaths by small-pox in each quarter.	Deaths in each year.
Third quarter of 1837	257	763
Fourth do. . . .	506	
First quarter of 1838	753	3817
Second do. . . .	1145	
Third do. . . .	1061	
Fourth do. . . .	858	
First quarter of 1839	364	606
Second do. . . .	117	
Third do. . . .	65	
Fourth do. . . .	60	
Total	5186	5186

The mortality from small-pox, according to Mr. Farr, was greater in the metropolis, with reference to its population, than in all the other parts of England. The district that most nearly approaches the population of the metropolis (somewhat exceeding it) is the District No. 8, comprising Cheshire and Lancashire. In this district the deaths by small-pox were

In 1837 . . .	1191
In 1838 . . .	1907
In 1839 . . .	1993
Total	5091

The advantage, it will be seen, is in favour of the country, but the difference is not great. Indeed, considering the difficulty of estimating accurately the population seven years after a census, these numbers shew a very remarkable coincidence in the extent and ravages of the disease, under circumstances apparently so different as are those of the metropolis and the great manufacturing district of England.

The next circumstance that claims attention is the age at which the mortality occurred. Mr. Farr does not profess to give full particulars on this head, but he states in his second letter the ages of 8706 persons who died of small-pox in 1839, and his first letter specifies the ages at which 1,056 persons died in 1837. The results of the two sets of observations may be summed up in the following table:—

Table of the ages of 9762 *persons who died of small-pox in England during the years* 1837 *and* 1839.

	Deaths.
Under the age of five years . .	7340
Between the ages of 5 and 15 .	1668
————————15 and 30 .	528
————————30 and 70 .	210
Upwards of 70 years of age .	16
Total .	9762

From this table we learn, that the great majority of deaths by small-pox occurred among infants and very young children, not one of whom had probably ever been vaccinated. This shews how greatly vaccination is neglected throughout England, and how urgent was the necessity for some legislative enactment for the extension of vaccination. Whether the Bill of last session was the right measure is quite a different question, on which I shall hope, ere long, to be permitted to offer some observations in your columns. The fact, that out of 9762 persons dying of small-pox, 754 only were *adults*, is very striking. Whether the same proportion held good in epidemic visitations, prior to the discovery of vaccination, is a point which, I fear, we have no means of ascertaining. I suspect, however, that in all periods of the world, the ages from birth to five years have been those on which the ravages of small-pox have chiefly fallen.

Hitherto the registrar's returns afford no clue by which we may determine that very interesting question, what proportion of the deaths by small-pox, throughout England, have taken place among the vaccinated. We have satisfactory evidence that, under fifteen years of age, the deaths by small-pox after vaccination are scarcely noticeable; so that the proportion must necessarily be very small, seeing that only one-thirteenth part of the total mortality is open to such a contingency. To determine the exact proportion, however, be it large or small, is an important object, and measures are now in progress to meet this desideratum. A recent order from the Registrar-General, addressed to the registrars of the metropolitan districts, directs that the fact of previous vaccination shall hereafter be inquired into and registered in all cases, so that in a few years, and especially when the order is extended to the whole of England, we may be assured of arriving at great certainty in this department of pathology.

The questions mooted by Mr. Farr, with regard to the laws which regulate the origin, culmination, and decline of variolous epidemics, must, with your permission, be reserved for a separate communication.—I am, sir,

Your obedient servant,
George Gregory.

31, Weymouth Street, Nov. 16, 1840.

CASE OF HYDROCEPHALUS CURED.

To the Editor of the Medical Gazette.

Sir,

Although there is nothing novel in the history or treatment of the following case, I conceive that the publication of it may be useful. It may stimulate medical men to continue to use their best endeavours in cases apparently hopeless. Near relatives, from fear of giving unnecessary pain to the patient, and nurses, in order to save themselves trouble, often discourage the use of means in cases apparently much less hopeless than the one which I have described.

'Qui nil potest operare, desperet nihil.

Was the serous effusion on the brain in this instance superficial, not extending to the ventricles?

If you deem this case worth notice, please to give it a place in the Medical Gazette.—I am, sir,

Your obedient servant,
Caleb Crowther, M.D.

Wakefield, Nov. 17, 1840.

Master Alfred Beckett, aged 11 years and a half, of leucophlegmatic habit, was attacked with scarlatina on the 1st of September, 1840. The fever continued in a mild form for about a week. He remained very feeble and languid until the 28th, when he became œdematous. He was seized with sickness and vomiting on the 4th of October, which continued until the 7th. On Monday evening, the 5th, at six o'clock, he was seized with convulsions, which continued until six o'clock the following morning. He became blind on the 5th, and continued to be so until the 8th, the pupils continuing immoveable. His sense of hearing was very acute. He laboured under severe dyspnœa, constant cough, and jactitation of the limbs, from the time he became convulsed until Wednesday the 7th, when he, for the first time, slept for a quarter of an hour, since the attack of convulsions. He began to complain of his head, accompanied with a sense of heat, on Monday morning, the 5th.

I saw him for the first time on Monday evening, about half-past 8 o'clock, when the pupils were dilated, the tunica albuginea pale, the pulse quick, feeble, and hurried; the tongue furred and dry, the bowels confined, the urine scanty, the face œdematous. He was delirious, and continued to be so until the 7th.

In the absence of Mr. Bennett, I attended this case, with Mr. Ross, for the first two days, and afterwards with Mr. Bennett. My prognosis was in the highest degree unfavourable. I recommended his parents, however, to persist in the use of means, stating that now and then, once perhaps in a thousand times, a patient under similar circumstances recovered. I ordered a blister to be applied to the shaved head, the black purgative mixture to be taken frequently, until it operated; pil. hydrarg. gr. ij. to be taken every two hours, with a dose of a diuretic mixture consisting of liq. ammon., acet. tinct. scillæ, and tinct. digitalis. He had no motion until the 7th in the morning, when he was freely purged, the stools being dark and very offensive. He voided very little urine until this time, when so copious a diuresis supervened that he was almost constantly wanting to void urine, and often wetted his bed. He began now to sleep soundly and frequently.

On the 8th the delirium left him. He still continued to be purged. The œdema had very much diminished. On Wednesday morning, the 7th, the extremities became very cold, and the pulse scarcely perceptible; he appeared to be dying. Towards evening, however, he rallied, and from that time continued gradually to recover. His cough continued to be troublesome for several days. Since he became sensible he has had no pain in his head; his appetite has returned, and he was disposed to take more food than was proper for him: he did, indeed, one day suffer some inconvenience from taking too much pudding. His purging continued until the 11th, when his motions became natural in colour and in consistence. On the 14th the œdema was gone; he continued to void urine freely, taking one dose of his diuretic mixture daily.

November 5th.—He is now very well again.

OBSTRUCTIONS IN THE EAR.

To the Editor of the Medical Gazette.

SIR,

THE few desultory remarks which follow are extracted from my note-book. If you think they are sufficiently interesting for insertion in your truly useful hebdomadal, they are much at your service.—I have the honour to be, sir,

Your obedient servant,
and constant reader,
CHARLES THORNHILL.

Darlaston, Staffordshire,
Nov. 2, 1840.

Extraneous substances in the auditory passage are highly injurious to the function of hearing, from their tendency to destroy the connection which subsists between the internal ear and the propagation of sound. In proportion to their size, these substances more or less shut out the sonorous rays, and prevent their duly acting upon the delicate membrane of the tympanum; but, although they operate for the time as causes of deafness, the sense of hearing is fully restored as soon as their removal is accurately accomplished. This is *generally* remarked to be the case; but there is no rule without an exception, as will be shewn even on this subject.

Many persons, accustomed to ear-ache, are in the habit of employing lint, cotton, or paper, for the purpose of filling up the external meatus; and this is done in order, as they tell us, to secure the good effects that may result from pressure on its lining membrane. This is quite an erroneous notion; for, so far from effecting good, positive harm is the frequent result of the practice. In illustration of this remark, I may mention an instance that occurred under my own observation.

Whilst syringing the ear of an elderly patient, who had long been the subject of deafness, after having removed a considerable quantity of hardened cerumen, a piece of paper was extracted closely coiled together. This was positively affirmed to have remained in the passage for no less a period than *twenty years*, the individual having a perfect recollection of the occasion on which it was placed there. On continuing the use of the syringe after this was removed, the water was readily propelled through the ear into the cavity of the mouth, by means of the eustachian tube, at each stroke of the piston. No doubt, from the close and constant contact of the foreign body for so long a period, the membrana tympani became so materially injured as ultimately to be destroyed; and this would account for the facility of communication between the ear and the mouth.

There is another practice prevalent among the lower orders which is equally reprehensible; and although the effects that supervene are widely different from that before mentioned, yet they sometimes occasion the greatest inconvenience. When troubled with an accumulation of wax in the ear, it is not uncommon for them to attempt removing the same by boring with pins and other sharp-pointed instruments, and this frequently produces such irritation in the lining membrane as to give rise to diseased action, and eventually create morbid deposit.

A case of partial deafness from this cause fell under my notice some short time ago. George G——, ætat. 19, called one morning to consult me respecting a difficulty of hearing, with which he had been afflicted for the space of two years. About the period of its first occurrence he had been in the frequent habit of using pins to scoop out the hardened secretion from the ear; but the custom had been desisted from latterly, on account of its being sometimes followed by an oozing of blood. On examination, I found that the passage was completely obstructed by a soft fleshy polypus, which could be drawn forward without difficulty. After representing to him the nature of the case, he immediately consented to its removal.

Having taken firm hold of the substance by the aid of a pair of short forceps, I commenced making gentle extension, when, after having performed three or four twists, it gradually but speedily gave way at its base. Slight hæmorrhage ensued, which continued for some time. To restrain the bleeding, I touched the parts with a little of the tinctura ferri muriatis, and afterwards gave directions that an acidulated lotion should be injected twice a day into the external meatus. The substance removed was about the size of a common horse-bean; and upon its withdrawal the patient expressed himself as entirely relieved: indeed, to use his own expression, "he could now hear as well as he had ever heard in his life." A few days subsequently he called to say that he felt his ear was perfectly well, and that his hearing was as acute as immediately after the removal of the polypus. He also remarked, that he should not readily be induced to pick his ears as on former occasions, as all the annoyance he had experienced from the dulness of hearing was attributable to this cause.

MEDICAL GAZETTE.

Friday, November 20, 1840.

"Licet omnibus, licet etiam mihi, dignitatem *Artis Medicæ* tueri; potestas modo veniendi in publicum sit, dicendi periculum non recuso."

CICERO.

THE RIGHTS AND WRONGS OF DRUGGISTS.

A PAMPHLET has just been published in the form of a Letter to Mr. Warburton[*]. It is written with much honesty and energy, and with some common sense; but the former qualities are generally predominant. It contains, however, many facts—confessions, we had almost said, but that we have every reason to believe that the author is no participator in the iniquities of which he is cognizant—respecting the innumerable frauds that are practised by adulteration and other like means in every department of the drug trade. We did not need these to call our attention to the subject. We should ill discharge our duties as medical journalists, if we were not ever awake to subjects of such high professional importance; but a notice of the pamphlet may be of use in exciting the whole body of our profession to the inquiry, whether the evils it reveals, and of which they are among the chief victims, do not admit of some immediate and certain remedy.

The chief grievance, under which it appears from the pamphlet that the honest druggist labours, is, that there is scarcely an article of his commerce which is not, for the purpose of lowering its price, adulterated over and over again by his fraudulent competitors. Foreign drugs are adulterated abroad: the drug-merchant writes to his correspondent for a certain article, and limits him to a price which is frequently below, and often only half, that at which the genuine drug can be procured. As the price will not meet the quality, the quality, which is more easily alterable, must be brought to meet the price, and no sooner is the destination of a drug determined, than its adulteration begins; hence, senna, scammony, opium, aloes, and sarsaparilla, though really as "genuine as imported," commonly contain from five-and-twenty to fifty per cent. or more of some useless material—chalk, stones, resin, or anything that will preserve appearances. It has not long arrived before the consignee again reduces its real, with a scrupulous regard to maintaining its nominal—value, by further adulterating it, and usually (for it is there the iniquity can be most easily carried on), at the drug-mill. Returned thence, it passes into the hands of the retail druggists; thence it seldom passes even so pure as it arrived; and it arrives at last in the stomach of the unhappy consumer, with scarcely one quality of that which it pretends to be. Happy is it for him if that which it should have been is replaced by that which is inert.

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[*] A Letter to H. Warburton, Esq. M.P. on the Utility of extending the Provision of his (Medical Reform) Bill to Chemists and Druggists, and on the necessity of extinguishing Quackery by Act of Parliament. By a Druggist.

We surely need not do more than repeat, on the authority of this pamphlet, that which has already been implied or openly stated by all the first authorities who have inquired into the subject, that "adulteration is almost the life-blood of the trade of drug-selling;" that "there is scarcely a chemical preparation in common sale or use, but what is liable to and suffers adulteration, or is brought into the market in an impure state;" and that this "system of fraud and injury has woven itself into the habits and the very existence of those engaged in the trade of drug-selling:" and add that these statements are not mere loose assertions, but are fairly deduced results from years of close and interested observation,—we need surely not do more than this, to awaken the profession to a sense of the difficulty or impossibility of conducting a successful practice when they have only the rotten and useless materials of the average of the drug-market to depend on for remedies of disease.

It must be, and of course is, admitted, that a few of the most respectable houses may, as far as their judgment goes, be relied on for the quality of their drugs, but these constitute but a small portion, and they are themselves liable to deception by their correspondents abroad, from whom the public have no warrant whatever, and whose frauds can be detected only by the sagacity and honesty of the few honest wholesale dealers here. In the present state of things, therefore, few practitioners can feel any confidence that the medicines which they prescribe are ever really administered: it is fortunate if, in their stead, nothing mischievous is given; but in many cases there is no doubt that medicines are adulterated and made cheap by the mixture of poisons—as of arsenic with antimony, corrosive sublimate with calomel, and so on.

What, then, are the means by which these evils may be remedied? by which a practitioner may be freed from the doubt which he must often entertain, whether that which he is prescribing will be curative, destructive, or inert. "Honesty and fair-dealing," no doubt, might effect it; nay, they alone can effect it, for in a case of this kind the most stringent laws are never availing beyond a comparatively small extent. But, then, they must be universal, instead of being exceptional among the members of the trade; among whom, as among those of all other callings, there will always be plenty who will think money not dearly earned by the twinges that their consciences give them at the beginning of their nefarious practices, and who will not want cunning to evade the penalties of the laws, which they have not the honesty to obey.

The plan which the author of the pamphlet proposes would begin at the importation of the drugs: he would have inspecting officers at the docks and bonded warehouses, to inspect every article landed; to seal those that proved satisfactory, and to re-export or destroy those that were unfit for sale. Thus, they would at least pass to the wholesale druggist pure. The next step would be to provide against the frauds and adulterations which are in his power; both here therefore, and in the next stages of their progress, in the shops of the retail-dealer, the author would have a complete and efficient system of inspection: no article should be allowed to pass to the retail houses till its purity were determined by analysis or inspection; and in these houses an eye should still be occasionally cast on it before it passed to the hands of the public.

In short, a more rigid system of inspection is the chief remedy proposed by the author. We do not doubt that it might be made of much benefit, but as for putting an end to all adulterations of drugs, no scheme of the kind can accomplish such a result. Look, for example, at the efforts of the Excise Office; and, by the way, if this plan of inspection is to be carried out, it is there that the right and power should be placed: look, we say, at the Excise Office. Why, with all the energy, and with all the undisputed rigid and irresistible force that the Excise can employ, it is notorious that excisable articles are adulterated by dishonest men at every stage of their progress, before they arrive at being consumed by the public: and yet how few are the convictions! In this great metropolis, in the matter of beer alone, the number of annual convictions is probably less than that of the honest publicans who do not by drugs or delusion adulterate the articles they sell. At the same time it cannot be doubted that, as far as it goes, the surveillance of an Excise officer exercises a most useful restraint on fraud, and it is much to be desired that something of the kind were established in the drug-trade.

With reference to the parties by whom the inspection should be carried on, the author speaks against the Apothecaries' Company with all the partiality and acrimony of an opponent in trade. It might perhaps be advantageous that the licensing and the trading part of the establishment should be more divided, and that the right of searching and inspecting of drugs should be given to others than those who are themselves of necessity either the opponents or friends in business of all those over whom they do, or if they please may, exercise surveillance. But the first of these questions it is no part of the business of druggists to inquire into; and when the writer goes out of his way to propose the total annihilation of the Apothecaries' Company, he forgets the truth that he told in the beginning of his pamphlet—that he is not a competent judge of the affairs of the medical profession, as well as the promise he made to confine his attention to his own trade.

Nor is this the only case in which the writer has forgotten the real position of the class of which he is a member. He appears to have entirely overlooked the unfairness of the mode and extent in which they practise medicine, to the serious injury of the licensed apothecary. The position of the chemist and druggist of the present day is almost exactly the same as that of the apothecaries (at least, as far as they were recognized by law) before the year 1815; and if it has never been disputed that some measures were then necessary for the security of the public against the malpractices of the apothecaries, it can surely not be doubted that some are requisite now to determine what are the rights of the druggists, who hold a similar position in the present day, and to restrain them, as far as possible, within the limits of those rights. The writer of this pamphlet may do his best to be figurative and facetious at the expense of the Apothecaries' Company, and to be fiery at the quacks, but he should not forget that the position of his own class is more anomalous than that of either, and that whatever be their assumed functions their medical practice is more like that of the latter than of the former class.

Chemists and druggists, as they call themselves (we speak of course of only the great body of them) have long ceased to be chemists. As a body they know no more of chemistry than they do of astronomy. And even as druggists, if this pamphlet may be trusted, the knowledge the majority of them possess is of that kind and quantity so commonly met with—enough to cheat with, but not enough to prevent being cheated: they can all adulterate their goods, but they do not seem able, even when disposed to do it, to determine how far others have already adulterated them by any other test than the relation which the asked price bears to the market price of each genuine article. This might have been enough to call for legislative interference, seeing that they deal with goods on which the health of every member of the community is once or more in his life dependent. But they go further; the great majority of those from whom the above picture of ignorance is drawn, practise physic—

> "Prescribe, attend, the medicine make, and give"

—and this without even the plea of benevolence which the good man of whom the line was written might urge. It is probable that the majority of what are regarded as slight illnesses, and of those little disorders whose sum determines the length of man's life as much as the rarer but more severe afflictions do, are treated by druggists, who, so far from being authorized to take the charge and cure of disease, are even ignorant of the nature of the means which they make use of.

We say again, what we have repeatedly urged, that there cannot be any reason why chemists should not be prevented from practising medicine. Either they should be restrained from doing more than selling medicines according to prescriptions, or if they may be allowed to dispense on their own recommendation, it should only be for very slight cases, and they should be prevented from doing even this until they have shown, by passing a satisfactory examination, that they may be trusted not to do mischief. In a word, those who are chemists only by name should be compelled to become, in fact, either apothecaries or druggists; they should have licenses either to practise and sell medicines, or to do the latter only. In the former case they might be placed under the superintendence of the Apothecaries' Company; in the latter, as the writer of the pamphlet suggests, under that of some authorized body, with powers similar to those of the Excise.

THE LATE INQUEST AT KENSINGTON.

Last week we gave a short account of the inquest held at Kensington on the body of Elizabeth Friry. On Thursday, the 12th inst. another investigation into the same case took place before the Board of Guardians of the Kensington Union, and Sir E. Head, the metropolitian assistant commissioner. Scarcely any new facts were elicited, and the investigation, like the inquest, terminated by a censure on the union surgeon, and the relieving officer.

The merits of the question lie in a nut-shell. The grand boast of the Poor Law Commissioners, perhaps the only boast founded on truth, is that they have lowered the rates. Yes, they are lowered, and it would be strange indeed if they were not. The same plan of minimization of the rates might be extended until they differed from zero, to use a mathematical expression, by a quantity less than any that can be assigned. Let all the Union Bastiles, for instance, be under ground, and we would guarantee a considerable diminution in the number of inmates. That this lowering of the rates has been accompanied by a frightful increase of the sufferings of the poor—of misery not the less acute because the corpses of its victims are commonly huddled into their graves without comment—is most true; but still the consoling arithmetical fact remains that the rates are lowered. When we examine how the reduction has been effected, we immediately find that one of the chief instruments of economy has been a harsh tone towards the poor.

The objects to be relieved, are not, as the Malthusians always insinuate, machines which advance with unerring aim towards the proffered gruel, but living creatures as capable of being hurt by scorn and contempt as many an assistant-commissioner. It is not to be supposed, however, that this desirable or rate-lowering manner has the same precise hue in all who adopt it. The polished Malthusian expresses his regret that his painful duty will not permit him to allow tobacco to enter a workhouse; while a relieving officer bids applicants for bread begone in the plainest English: the spirit is the same in both. There is a pretence which we have all heard a thousand times, that workhouses, as now managed, are exquisite tests of destitution; fine sieves by which our Poor Law people can infallibly separate the impostor from the meritorious poor man; the starving labourer passes through, while the mere idler remains upon the wires. In practice, however, these coarse bolters do not succeed; rather than submit to the shameful rigour of a Union penitentiary, the poor prefer dying of want in their own hovels. It is obvious to every impartial person that catastrophes like the one at Kensington must be of common occurrence, and that the prominent distinction of the case is Mr. Wakley's activity in bringing it to light. Hence the true palliation of the conduct of the surgeon and relieving officer at Kensington—if palliation it can be called—is to be found in the admitted facts that "lower the rates" is the never ceasing cry of their masters the Poor Law Commissioners; and that the only way of doing this effectually is by scaring away the suffering poor. Instead of taking up this line of defence, however, Mr. Wright sends a letter to the Board of Guardians, in which he says, among other things, "It is not that I feel individually the dastardly acrimony of a party who at once avow their disloyalty to their Sovereign by the reckless opposition to the New Poor Law—to a bill, which, whatever be its merits or its defects, is nevertheless the established law of the land." Such trash as this does not mend the matter in the least. The real excuse should be, that in order to reduce the rates to a minimum, or "carry out the new Poor Law," as it is often termed, the indigent must be treated with extreme rigour; and it is not every one who can give nothing with the suavity of a courtier, or who even knows how many degrees below zero, are esteemed the proper temperature of charity at Somerset House. It would seem from this investigation that the rule of admitting urgent cases into workhouses without an order is by no means universally acted on: the same thing came to light in the investigation of the caseof the young woman, who was lately delivered in a cab, having been refused admittance into Lambeth and St. James's workhouses; so that any catastrophe may happen while an order is being procured.

The observations of Sir E. Head on the case of Elizabeth Friry were just and feeling, and if commonly made by Commissioners and Assistant-Commissioners, would go far to disarm opposition to the New Law, by humanizing the spirit in which it would be administered. Let us trust that it may be so; and instead of the Harpagon howl of "Lower the rates," may we hear the more English cry of "Relieve the suffering!"

ROYAL MEDICAL AND CHIRURGICAL SOCIETY.

Nov. 10, 1840.

DR. CLENDINNING IN THE CHAIR.

A Fourth Memoir on some Principles of Pathology in the Nervous System: viz. on the Plan of Observation to be adopted in the Investigation of the Diseases of this System. By MARSHALL HALL, M.D. F.R.S.

AFTER having alluded to the subject of his former memoirs, the author observes that it is impossible now to observe or investigate a disease of the nervous system, without a constant reference to the distinctions he has proposed in regard to its physiology and pathology. He observes, sufficient has been done to shew that we must, in all such investigations, view the nervous system as subdivided not into the cerebro-spinal and ganglionic, but into the cerebral, the spinal, and the ganglionic; and that, in considering each disease of the system, we must trace its influence distinctly in these three subdivisions of that system. We must inquire—1. What are the diseases of the cerebral, of the true spinal, and of the ganglionic subdivisions of the nervous system? and 2. What is the influence of disease of one of these on the other two? and in what order is that influence manifested? The replies to these questions give the *diagnosis* and the *prognosis*.

In hemiplegia the danger is in proportion to the degree in which the true spinal system is involved with the cerebral. Is there stertor? is there dysphagia? are the sphincters affected? there is great danger. Do these symptoms continue in spite of active remedies? the case is fatal. What is the *rationale?* The true spinal system has been affected by the cerebral disease, by counter-pressure. If this be from *congestion* merely, bloodletting relieves it, and the symptoms cease. If the symptoms do not cease, the fear is excited that not congestion but effusion is the immediate cause.

In a case of the purest apoplexy, that following a violent fit of epilepsy, the eyelids did not close when the eyelashes or the conjunctiva was touched; nor did dashing cold water on the face induce sobbing. Forty ounces of blood were taken from the arm, and these functions of the true spinal system were at once restored. It is unnecessary to state what influence these facts had on the diagnosis and prognosis.

In a case of hydrocephaloid disease, the eyelids gaped and remained motionless when approached and touched with the finger. On giving cordials, the true spinal system recovered its functions, and the little patient recovered forthwith.

The first degree of apoplexy exists as a purely cerebral affection, the second involves the true spinal marrow, and the third the ganglionic system. Coma, stertor and dysphagia, bronchial rattle, &c. respectively denote these several degrees of this malady.

Tetanus, on the other hand, is at the first a purely spinal affection; the cerebral functions are unaffected; during its course the cerebral and the ganglionic subdivisions of the nervous system become involved.

Epilepsy seems to occupy the limits of the true cerebral and spinal system. The first symptoms are, in a multitude of cases, if not in all, affections of the true spinal: the effects of these are seen in the cerebral subdivisions of the system.

The paper discusses the subject of counter-pressure, in cerebral diseases, on the true spinal marrow; and the peculiar effect of exposure to cold, in first inducing paralysis and then spasmodic affection. These points were illustrated by a series of facts and observations.

The author concluded by presenting a list of the points to be noticed in investigating the diseases of the nervous system, in the form of a table:—

1. The cerebral symptoms,
2. The true spinal symptoms,
3. The ganglionic symptoms, distinctly.
4. The degree of complication of these.
5. The supervention of one or two of these upon the third previously existing.
6. The condition of the muscular irritability.
7. The condition of the reflex and retrograde actions.
8. The action of the *vis nervosa*.
9. The effects of emotion.
10. The power of volition.
11. The probable influence of counter-pressure.
12. The condition of paralysis and of spasm, and the changes in these.

Some discussion followed, but not of a nature to throw any farther light upon the subject.

RESULTS OF M. ORFILA'S TOXICOLOGICAL EXPERIMENTS.

We return to this subject, and give the results, such as we have seen them, and as they have been publicly announced by the professor, with a view to prove on the one part that arsenic and tartar emetic, when absorbed, are mingled with the blood, pass successively through all the organs, and are rejected more or less rapidly, as excrementitial products, through the urines; on the other, that the treatment by tonics is disastrous, while the treatment by diuretics is regarded as most advantageous by M. Orfila.

All the dogs to which small doses of arsenical acid dissolved in water were administered, and which were subsequently left to themselves, whether they were bled or gorged with hot water, with a view to excite and augment the urinary secretion, were cured. All those, on the contrary, which took the same dose of arsenical acid, and were treated by tonical medicaments, died. One dog, which, without being poisoned, had the tonic potion of M. Roguetta passed forcibly thrice successively into his stomach, died in a few hours; but it must be confessed that the dose was enormous. What are we to conclude from results in appearance so positive and conclusive? Our embarrassment will be readily conceived. M. Roguetta has made, before a commission of the Academy of Medicine, some experiments, by which he contends that he has established that all the dogs which took his tonic medicaments were cured, whilst all those which he treated by bleeding, according to M. Orfila's plan, died, either from the effects of the poison, or of the particular mode of treatment. M. Orfila on his side asserts, that he has proved that all the dogs which he had treated by bleeding and hot water have been cured, while those to which he administered tonics, died. Between Hippocrates, who says "Yes," and Galen, who says "No," we have always said both "yes" and "no." In effect, dogs poisoned by arsenic become cured by all modes of treatment, provided they vomit, that is to say (if the word be permitted us) provided they "disempoison" themselves. Diuretics may be useful when they aid the animal to rid himself, through the urinal process, of the quantity of poison absorbed. But these same diuretics may be injurious when, at the same time that they expel the poisons absorbed; they dilute that which still remains in a state of powder in the digestive system, M. Orfila himself admitting that, in order to act, arsenical acid, which is little soluble by nature, must in the first instance be dissolved. On the other side, tonics may be advantageous when they give the animal new strength to vomit, but they become pernicious when fever and inflammation have been already produced by the action of the poison.

M. Orfila established—1, that the elimination of poison through the urine is much more rapid in the case of tartar emetic than of arsenic; 2, that this elimination takes place from the commencement of the poisoning, and is continued so long as the organs contain poison; 3, and lastly, that arsenic or antimony remains in the interior organs, the liver especially, even when no traces of it are longer to be found in the excrementitial liquid. His experiments all confirmed these results, whether they treated the urines of dogs which had survived the poisoning, or operated upon the urine or the organs of those which were slain, or had died within one or six days after imbibing the poison. Moreover, at the request of several physicians, it was established that the urines of several sick persons who had taken either emetic or arsenic as medicaments, exhibited, when submitted to Marsh's apparatus, traces by no means equivocal of arsenic or of antimony,

It is obvious how important these results are, either therapeutically considered, or in connexion with legal medicine. The physician, when called to the bedside of a patient whom he has reason to believe poisoned, may at once, by a simple chemical analysis, assure himself whether these suspicions are well founded. But M. Orfila did not confine to this the important disclosures which he made to his audience. This part of his experiments or demonstrations, of which we have still to give an account, is neither the least important nor the least filled with interest.

The first care to be taken in a course of medico-legal experiments is to make certain of the purity of the reactions employed. For Marsh's apparatus, M. Orfila observes, that the precautions to be taken are very simple. Zinc and water are put into a flagon. Some pure sulphuric acid is added, and the as is inflamed. If the jet of this flame makes no deposit on a porcelain plate, all the reactions employed are pure, and Marsh's apparatus may be used with all safety. We have no objection to make to this reasoning. But we must observe, that it is not every brilliant spot which is arsenical; and this is confessed by M. Orfila himself. There are employed for the treatment of arsenical matters, *potass à l'alcohol*, nitric acid, and nitrate of potass. We need scarcely add, that the utmost pains must be taken to secure the purity of these substances. M. Orfila ordered a kilogramme of nitrate of potash to be taken by chance from a druggist's, this nitrate being crystallized. 500 grammes of this nitrate of potash were decomposed, through exposure to heat, by 435 grammes of pure sulphuric acid, and yielded in Marsh's apparatus no trace of arsenic, while the second half of the same nitrate, with the addition of the hundredth part of a gramme of liquid arsenical acid, at once gave numerous metallic spots, whence the professor thought himself justified in concluding, that the common nitrate of potash, used for purposes of trade, when it is crystallised never contains arsenic. But M. Orfila also demonstrated by divers experiments that the peroxyde of common iron and that used by druggists almost always contains arsenic. In seeking for the origin of this poisonous substance in a medicament usually accounted an antidote, M. Orfila showed that it was owing to the pyrites of iron employed for the preparation of colcothar, which pyrites of iron is known to contain arsenic pretty frequently.

That there exist arsenical earths no one doubts. Arsenic is as generally diffused as iron, and iron is to met all through nature. But can the arsenic which exists in the earth communicate itself to a dead body?" No," says M. Orfila; and here are the experiments and reasonings on which he founded his opinion. He collected in different places, more especially in cemeteries, earths containing salts or arsenical composts; and in no instance did he obtain, by the exclusive action of boiling water, a *solutum* which in Marsh's apparatus yielded arsenical spots. Upon the other hand, he took seven pounds of earth from the cemetery of Mont Parnasse, diluted them with water, treated afterwards with boiling sulphuric acid for the space of 24 hours, and obtained from the *solutum* manifest traces of arsenic. Strong acids, therefore, are alone capable of decomposing or dissolving arsenical salts found in the earth, and water, even boiling, has no action whatever upon them. Unless we admit unknown reactions in the bosom of the earth, unless we suppose an intervention of electro-chymical forces to explain phenomena which we do not see, and which we cannot establish, it is impossible, says

M. Orfila, to advance that terrene arsenic can act upon animal matter.

Another question remains. Can the body of an individual who has been poisoned lose the arsenic which it contains? "Yes," replies M. Orfila with confidence, "because, in the decomposition of animal matter, it may be carried off by gases which decompose themselves, ammoniac in particular. But we may object: can we believe that no ammoniacal gas is disengaged in the earth itself? Is not the earth of cemeteries impregnated with animal matter? It is not by theory, but by direct experiments, that these questions must be answered. Still it must be remembered that arsenic proceeding from the earth, and communicated to a dead body, never can produce effects analogous or comparable to those which result from poisoning by means of arsenic during life. It could only penetrate by imbibition: and we have seen by what characteristic signs we can distinguish a toxic substance which has been conveyed into the organs by physiological circulation and absorption.

As to the important question of the spots supplied by Marsh's apparatus, arsenical spots are brilliant, and of a clear gray, very like the colour of steel. Antimonial spots are deeper, more opaque, and have blue reflection, like the crystals of antimony. But if we suppose spots of arsenic and antimony mixed, will it be always easy to distinguish and appreciate them? M. Orfila, to habituate the eyes of his audience to the effect produced by this alliance, passed round a plate covered with spots obtained, some by means of a mixture, in Marsh's apparatus, of a drop of arsenical acid and a drop of antimoniacal acid, others from two drops of the former and one of the latter, and afterwards he proceeded so far as nine drops of arsenical acid to the same quantity of antimony. He also, pursuing an opposite course, presented spots proceeding from an admixture of the same acids, but in inverse proportions. This was a most interesting examination; but the eyes are imperfect judges to decide such a question. Accordingly, M. Orfila recommends the profession to consult the chemical characteristics, by the aid of which it is always possible to distinguish arsenic from antimony and other metals. In conclusion, M. Orfila said, that to ask of legal medicine to weigh the poison which it discovers in a corpse is to demand an impossibility. M. Orfila is, doubtless, the best judge; but is such a decision without appeal? Will science to-morrow be just what it is to day? Without becoming too enthusiastically wedded to notions of progress, may we not hope from the future what the past has been incapable of accomplishing?—(*Times, from the Moniteur.*)

NORTH OF ENGLAND MEDICAL ASSOCIATION.

THE Council met on Wednesday last (Dr. HEADLAM, President, in the chair), when, after the transaction of other business had been concluded, the Medical Profession Bill, proposed to be introduced into the House of Commons by Benjamin Hawes, Esq., M.P., was taken into consideration: and it was resolved unanimously:—

"That the Council have much pleasure in expressing their approbation of the principles which have been observed in the construction of this Bill.

"1. Because the Bill proposes to institute a registry of all persons, who are, at this time, or may hereafter become, legally qualified to practise the art of Medicine in the United Kingdom of Great Britain and Ireland.

"2. Because it provides for the consolidation and organization of the profession, by incorporating the qualified members thereof, and by entrusting the administration of medical affairs to three Representative Councils — one in England, a second in Scotland, and a third in Ireland.

"3. Because it proposes to confer upon all qualified practitioners of medicine, equal rights, immunities, and privileges.

"Because it contemplates providing the United Kingdom with a duly certificated body of medical practitioners, by requiring all persons who shall be engaged in medical practice to be licensed by one or other of the Councils.

"5. Because it proposes to afford protection to the public against the dangerous practices of ignorant pretenders to medical knowledge, and to vindicate the rights and privileges of the qualified practitioner, by rendering it penal for any one to practise medicine without the license of one or other of the aforesaid Councils.

"6. Because it makes provision for insuring uniformity in the qualification of all medical practitioners, by obliging the Councils to examine all candidates for their license; and by the election of a Senate, to which is to be entrusted the framing of bye-laws for regulating, in all respects, the education of students, and the examination of candidates for diplomas of qualification to practise the art of Medicine; such persons only as shall comply with the bye-laws of the Senate being admissible to examination for a diploma; which examination is, in every respect, to be conducted in the manner prescribed by such bye-laws as aforesaid*.

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* The powers which, according to the 28th clause of this Bill, would be confided to the Councils and Senate, whilst they would obviously tend to secure professional competency, and uniformity in the qualification of medical practitioners

"7. Because it proposes to place the science and practice of Pharmacy under proper superintendence, by requiring all chemists and druggists to hold the license of one or other of the Councils; and by rendering it imperative on all persons who shall not have carried on the business of a chemist or druggist prior to the passing of this Act, to undergo an examination in accordance with the bye-law of the Senate, before receiving the license of the Council.

"8. Because it provides for the publication of a British Pharmacopœia."

The Council, in stating their general approbation of the principles embodied in the Bill of Mr. Hawes, and of some of the more important features of that measure, beg to be understood as not by any means giving their implicit and unconditional assent to the whole of the propositions therein contained. Some of them would undoubtedly require to be considered, before bringing the Bill into parliament; others to be amended, or perhaps entirely withdrawn; and in some respects the Bill is defective on the ground of omission.

In the present position of medical affairs, and in the anticipation of a third Medical Bill, it would be eminently unwise and imprudent in this Association to pledge itself to the support of any particular measure; and the Council would strongly urge upon their brethren, in all parts of the kingdom, the expediency of withholding their positive adherence to any given plan of Medical Reform, until opportunity have been afforded the profession of ascertaining the number and nature of the bills which are likely to be submitted to Parliament.

The Council are furthermore of opinion, that a strenuous effort should be made to procure the introduction into the legislature of one bill and of one only. With this end in view, and in the hope of adapting such Bill, as far as possible, to the exigencies both of the public and of the profession, they give their cordial assent to the proposal of the British Medical Association, that delegates should be chosen by the different associations to meet in London for the purpose of advancing the progress of medical legislation in the next session of parliament.

A letter having been read from the Secretary of the British Medical Association, relative to the appointment of delegates, it was resolved unanimously, on the motion of Sir John Fife, of Newcastle, seconded by Dr. Brown, of Sunderland, "That this Council do authorize their Secretary to proceed to London, as a delegate from this Association, appointed to co-operate with the representatives of other Medical Associations of the United Kingdom, in promoting the advancement of medical legislation.

LOOSENESS OF THE TEETH.

Among the various causes which produce looseness of one or several teeth, none is more common than inflammation of the alveolar processes and sockets. Sometimes this originates in disease of the tooth itself, or of the gums; but in other instances, the diseased process commences in the alveolar periosteum, and by spreading to the sockets and gums, it gives rise to great pain, swelling, and sponginess of the latter, while it eventually detaches the fangs of the teeth implicated in the attack, from the grasp of the sockets, and thus at last the teeth fall out, though in themselves they exhibit no appearance of decay.

The progress of the disease is accompanied by extreme pain, and as a puriform discharge oozes out from between the gums and the inflamed periosteum, many limit their attempts to local means, and often succeed in effecting a cure by frequent applications of leeches to the inflamed gum, and in very obstinate cases, by incisions freely made through the gums and inflamed periosteum. Last year a patient of mine was thus affected, and thus treated, and although under the care of a most skilful surgeon, and of an eminent dentist, he lost successively a left bicuspis and molar of the upper jaw. His sufferings were for a short time relieved by the extraction of each tooth, but in a few days became as agonizing as ever, when finding all the neighbouring teeth loose, and being told that they also must soon be drawn, he had recourse, in despair, to a celebrated homœopathic doctor, whose infinitessimal doses completely failed; for the patient's sufferings were produced by a direct physical cause, which lay far beyond the limits to which the influence of even the most powerful imagination can possibly extend. Happening to mention his wretched state to me, I immediately recollected, that a year before I had successfully treated him for a periostic affection of the sternum and ribs, and that hydriodate of potash was the medicine which served him most. I recommended him to use ten grains of it three times a day, and

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in all parts of the United Kingdom irrespectively, would not deprive any existing University, College, or Hall, of the power to educate and to examine medical students; for by the concluding part of the clause, all candidates applying to be examined by the Councils would be compelled to produce evidence of having taken a degree in Medicine, or having passed an examination in Medicine or Surgery, before one or other of the institutions entitled to grant a diploma, certificate, or letters-testimonial, at the time of the passing of this Act. No University, College, or Hall, would, however, (after the publication of the bye-laws of the Senate,) have power to grant any diploma, certificate, or license, except under the provisions contained in this Act.

had the satisfaction of perceiving a daily improvement, so that pain and inflammation soon ceased, and in about ten days the teeth were all fastened.

The periostitis to which this gentleman was liable was of a rheumatic nature; otherwise his constitution was sound, and he was only thirty-four years old.—*Dr. Graves, in Dublin Journal.*

GOUTY REDNESS OF THE NOSE.

A lady of a decidedly gouty habit, aged sixty, applied to me under the following circumstances: for the last two months she had become liable to a daily paroxysm, which observed the following course. About three o'clock in the afternoon, her nose began to grow hot, and the heat continued for four or five hours, the part becoming first of a bright, and then of a purplish red colour, which spread to the upper portion of her cheeks, and was accompanied by some uneasiness, but no pain, and always subsided about the same hour in the evening. I advised small doses of colchicum, but have not learned the result. Within the last ten years, I have seen, in private practice, three examples of hypertrophy of the finger tops, and corresponding hypertrophy of the nails, two occurring in delicate, and one in a phthisical habit. In all these patients the remaining parts of the fingers were emaciated, while the tips of the fingers were much, and abruptly enlarged, especially in the transverse diameter, the nails being also of greater size, considerably longer, broader, stronger, and more curved than natural; in all these, was evident increase in the capillary circulation, and the tips of the fingers were red, tender, and painful, and often bathed in sweat; a minor degree of this affection, characterized however only by strong aduncated nails, while the tips of the fingers are much less emaciated than other parts of the hand, feel hotter to the patient, and sweat more, is frequent in phthisis.—*Dr. Graves, in Dublin Journal.*

VACCINATION FEE AT BRENTFORD, HALF-A-CROWN.

To the Editor of the Medical Gazette.

Sir,

By way of supplement to the communication you did me the favour of inserting at page 174 of the present volume, I enclose a circular which has been issued within these few days, announcing the consent of the Guardians and the sanction of the Commissioners to the terms proposed by the combined practitioners of this Union. You will perceive that in addition to the allowing of *half-a-crown per case*, the privilege of vaccinating under the act is not restricted to the parochial surgeons, but is *open to every qualified practitioner* throughout the Union.

This triumph over the misinformation which dictated the original offer of the Commissioners has been achieved only by the unanimity of the thirty-three medical men of the Brentford Union, not a single one of whom has acted in opposition to the wishes of his professional brethren.

With many thanks for your ready publication of our proceedings, I remain, sir,

Your obliged and obedient servant,

Francis A. B. Bonney.

Brentford, 18th Nov. 1840.

BRENTFORD UNION.

Brentford, Nov. 11, 1840.

Gentlemen,—The Poor Law Commissioners having sanctioned the proposal to throw open the performance of Vaccination to every duly qualified Medical Practitioner in the Union at Two Shillings and Sixpence for each successful case,—

I am requested by the Board of Guardians to apply to you, to be informed if you are willing to enter into the Contract prescribed by the Commissioners on the terms named?—And to beg your reply in writing on or before the 1st day of December next.

I am, Gentlemen, your obedient servant,

G. Clark.

To the Medical Practitioners within the Union.

HENLEY ON THAMES.—VACCINATION.

The medical gentlemen employed in the care of the poor of this Union, after several unsuccessful exchanges of proposals with the guardians, as to terms for vaccination, have felt themselves, in conjunction with all the medical men of the town, and some others of the neighbourhood, called upon to condemn and regret the offer of eighteen-pence per case, as not only falling short of remuneration altogether, but as offering an injury to the credit and character of the profession. The offers of two shillings and sixpence for cases at their respective surgeries, and three shillings and sixpence for the more distant, are unanimously determined upon by the medical gentlemen, and have been hitherto declined by the guardians.

They cannot but hope that their medical brethren will act with equal unanimity, and consideration of what is due to the character of their profession, whose honourable conduct, and disinterestedness in the ministration of vaccination heretofore, has been highly complimented by the authors of the eighteen-penny fees! It is no reflection upon them that they no not understand, the delicate, important, and, in rural districts, troublesome and laborious, duty of efficient vaccination.

Henley on Thames,
Nov. 17, 1840.

UNIVERSITY OF LONDON.

SECOND EXAMINATION FOR THE DEGREE OF BACHELOR OF MEDICINE.

November, 1840.

The following is a list of the Candidates who passed this Examination, and who have consequently had conferred on them the degree of Bachelor of Medicine.

First Division.—Philip Burnard Ayres, University College; John Charles Bucknill, University College; John Carey, Richmond Hospital, Dublin; Anthony French Carpenter, School of Physic in Ireland; Henry Cooper, University College and Middlesex Hospital; Stephen Jennings Goodfellow, St. Bartholomew's Hospital; Thomas O'Meara, University of France, and Mercers' Hospital, Dublin; John Paddon, University Coll.; Rich. Quain, University College; William Rayner, University Coll.; Robt. Russell Sewell, University College; John-Douglas Strang, University College; Jonathan Mason Waddy, St. Thomas's Hospital, and Webb Street; Thomas Williams, Guy's Hospital, and Webb Street; Edwin Wing, School of Physic in Ireland.

Second Division. — Edward Goodeve, Bristol (Medical School); Robert Hutchinson Powell, Digges Street, Dublin; and Apothecaries' Hall, Ireland; Wm. Tyler Smith, Bristol (Medical School); David Unwin, University College.

SECTION OF THE DORSAL MUSCLES FOR THE CURE OF LATERAL CURVATURE OF THE SPINE.

To the Editor of the Medical Gazette.

Sir,

Since I performed the operation of dividing the dorsal muscles for the cure of certain curvatures of the spine I have been overpowered by letters from all quarters, in which I am requested to explain the mode in which the operation is performed, and the kind of curvatures for which the operation is suitable. As my avocations will not permit me to answer the letters of my respected correspondents individually, will you have the goodness to allow me, through the medium of your publication, to inform my correspondents that I shall take an early opportunity of transmitting the case to which their letters refer to the Medical Gazette, when I hope I shall be able to give a satisfactory answer to all their interrogatories.

I am, sir,
Your obedient servant,
Robert Hunter.

33, North Hanover St., Glasgow,
Nov. 11, 1840.

LORD RECTOR, GLASGOW.

MEETING IN FAVOUR OF SIR ASTLEY COOPER.

Monday a meeting of the members of the medical profession, and of the students of the University favourable to the election of Sir Astley Paston Cooper, Bart., as Lord Rector, was held in the surgery class-room of the College, at three o'clock, and was numerously attended, the class-room being crowded to overflowing by a mixed audience of medical students, graduates, and students in the different classes of the College. The proceedings were conducted with order and decorum, and the feeling of the meeting was unanimous in favour of the return of Sir Astley P. Cooper to the rectorial chair.—*Glasgow Constitutional.*

The election has since taken place, and in favour of Lord Breadalbane. The numbers were—Lord Breadalbane, 250; Sir Astley Cooper, 111; Duke of Wellington, 105.

ROYAL COLLEGE OF SURGEONS.

LIST OF GENTLEMEN ADMITTED MEMBERS.

Friday, November 13, 1840.

W. Fergusson.—F. K. Hunt.—T. M. Costello.—C. H. E. Skinner.—R. C. Burleigh.—W. Fennelly.—A. C. Macleod.—E. A. Parkes.—W. J. Stuart.—W. Tullford.—A. L. Johnson.—S. F. Underhay.

METEOROLOGICAL JOURNAL.

Kept at Edmonton, *Latitude* 51° 37′ 32″ *N.*
Longitude 0°.3 51″ *W. of Greenwich.*

Nov.	Thermometer.			Barometer.		
Wednesday 11	from 33	to	48	29·28	to	29·18
Thursday . 12	35		46	29·44		29·46
Friday . . 13	37		52	28·26		28·61
Saturday . 14	42		50	28·97		29·25
Sunday . . 15	29		45	29·40		29·46
Monday . . 16	37		59	29·07		29·24
Tuesday . 17	42		51	29·50		29·23

Prevailing wind, S.W.

On the 11th generally cloudy, with rain; the 12th, afternoon clear, otherwise cloudy; the 13th cloudy, with heavy rain, and wind very boisterous; the 14th and following day generally clear; the 16th, morning cloudy, with rain, otherwise clear, wind boisterous; the 17th, a general overcast, with frequent showers of rain, wind very boisterous; during the evening rain.

Rain fallen, one inch and ·035 of an inch.

Charles Henry Adams.

NOTICE.

Dr. Doherty's answer to Mr. Carmichael next week.

MONTHLY LIST
OF
DRUGS ON SALE IN THE ENGLISH MARKET,

With their Prices and several Duties.

(From the Official Returns, Nov. 10, 1840.)

		Price.			Duty and 5 per cent.	Duty Paid.	
		£ s. d.		£ s. d.	s. d.	In 1839 to last week.	Same time last year.
Aloes, Barbadoes, D.P.	c	15 0 0	to	30 0 0	B P. lb 0 2	113,294	116,070
Hepatic (dry) BD	c	5 0 0		10 0 0	F. lb 0 8		
Cape, BD.	c	3 0 0		4 5 0			
Anise, Oil of, German, D.P.	lb	—		—	F. lb 1 4	833	—
E. I.	lb	0 5 0		0 5 6	E. I. 1 4	833	1481
Asafœtida, B.D.	c	1 10 0		3 10 0	c 6 0	64	20
Balsam, Canada, D.P.	lb	0 1 0		0 1 1	lb 0 1	5,437	10,728
Copaiba, BD.	lb	0 1 8		—	c 4 0	688	573
Peru, BD.	lb	0 4 6		—	lb 1 0	1,017	595
Benzoin (best) BD.	c	25 0 0		50 0 0	c 4 0	76	104
Camphor, unrefined, BD.	c	12 0 0		—	c 1 0	488	411
Cantharides, D.P.	lb	6 3 6		—	lb 1 0	12,949	14,941
Caraway, Oil of, D.P.	lb	0 9 0		—	lb 4 0	1,054	987
Cascarilla or Eleutheria Bark, D.P.	c.	3 10 0		—	lb 0 1	12,409	3,096
Cassia, Oil of, BD.	lb	0 9 6		—	lb 1 4	2,386	2,651
Castor Oil, East India, BD.	lb	0 0 4		0 0 10	c 1 3	68,63	5,725
West I. (bottle) D.P. 1½	lb	—		—	—		
Castoreum, American	lb	0 17 0		0 18 0	lb 0 6	520	629
D.P. Hudson's Bay	lb	0 18 0		1 0 0			
Catechu, BD. Pale	c	1 1 0		—	c 1 0	48,491	42,468
Dark		1 6 0		—			
Cinchona Bark, Pale (Crown)	lb	0 2 0		0 3 6	lb 0 1	36,599	44,324
BD. Red	lb	0 2 0		0 4 0			
Yellow	lb	0 4 0		0 4 4			
Colocynth, Turkey	lb	0 1 6		0 2 9	lb 0 2	7,679	8,552
D.P. Mogadore	lb	0 1 0		—			
Calumba Root, BD.	c	0 12 0		1 15 0	lb 0 2	9,447	9,384
Cubebs, BD.	c	3 0 0		3 10 0	lb 0 6	29,391	36,309
Gamboge, BD.	c	5 0 0		15 0 0	c 4 0	54	58
Gentian, D.P.	c	1 10 0		—	c 4 0	347	454
Guaiacum, D.P.	lb	0 1 0		0 3 0	c 6 0	30	15
Gum Arabic, Turkey, fine, D.P.	c	12 0 0		13 0 0	c 6 0	8,414	6,723
Do. seconds, D.P.	c	7 0 0		7 10 0			
Barbary, brown, BD.	c	1 19 0		2 0 0			
Do. white, D.P.	c	5 10 0		—			
E. I. fine yellow, BD.	c	2 5 0		2 14 0	c 6 0	5,595	6,516
Do. dark brown, B.D.	c	1 15 0		2 5 0			
—— Senegal garblings, D.P.	c	3 0 0		—	c 6 0	22,031	20,695
—— Tragacanth, D.P.	c	8 0 0		12 0 0	c 6 0	215	72
Iceland Moss (Lichen), D.P.	lb	0 0 2½		0 0 3	lb 0 1	5,131	15,933
Ipecacuanha Root, B.D.	lb	0 1 3		—	lb 1 0	5,801	6,307
Jalap, BD.	lb	0 2 9		—	lb 0 6	39,390	36,076
Manna, flaky, BD.	lb	0 3 0		0 3 3	lb 0 3	12,276	10,734
Sicilian, BD.	lb	—		—			
Musk, China, BD.	oz	1 0 0		3 10 0	oz 6 0	1,676	1,273
Myrrh, East India, BD.	c	5 0 0		14 0 0	c 6 0	125	204
Turkey, BD.	c	2 0 0		11 10 0			
Nux Vomica, BD.	lb	0 8 0		0 9 0	lb 2 6	396	478
Opium, Turkey, BD.	lb	0 9 0		—	lb 1 0	40,617	26,407
Peppermint, Oil of, F. BD.	lb	0 12 0		0 13 0	lb 4 0	4,470	2,047
Quicksilver, BD.	lb	0 3 11		—	lb 0 1	291,808	282,231
Rhubarb, East India, BD.	lb	0 5 0		0 7 0	lb 1 0	14,227	21,598
Dutch, trimmed, D.P.	lb	0 8 0		0 9 0	F. lb 1 0	20,084	5,668
Russian, BD.	lb	0 7 6		0 8 6			
Saffron, French, BD.	lb	—		—	lb 1 0	2,761	4,188
Spanish	lb	1 5 0		1 6 0			
Sarsaparilla, Honduras, BD.	lb	0 1 0		0 1 9	lb 0 6	113,261	101,589
Lisbon, BD.	lb	0 2 0		—			
Scammony, Smyrna, D.P.	lb	—		—	lb 2 6	8,863	7,309
Aleppo	lb	0 18 0		1 0 0			
Senna, East India, BD.	lb	0 0 3		0 0 4	E.I. lb 0 6	77,675	103,351
Alexandria, D.P.	lb	0 1 6		0 1 8	Other sorts 0 6	56,474	56,200
Smyrna, D.P.	lb	0 1 0		0 1 3			
Tripoli, D.P.	lb	0 1 0		0 1 3			

‡§‡ BD. In Bond.—c. Cwt.—B. P. British Possessions.—F. Foreign.—D. P. Duty paid.

Wilson and Ogilvy, 57, Skinner-Street, Snowhill, London.

DR. REID ON THE PLACENTAL TUFTS, IN REPLY TO DR. KNOX.

To the Editor of the Medical Gazette.

SIR,

I DEEPLY regret that I should be placed under the painful necessity of directing the attention of your readers to the following statements.

In the MEDICAL GAZETTE for Oct. 30, 1840, there is a paper by Dr. Knox, of Edinburgh, on the "Placental Tufts described by Weber, &c." which, although it does not adduce any direct charge against me, yet from the artful way in which it is worded, and from its perversion of facts, contains by implication most grave insinuations against my character. In that paper Dr. Knox asserts that in March 1839, he ascertained various anatomical points on a preparation of an impregnated uterus belonging to me; that he dictated the substance of these observations to his friend Mr. King; and that he explained them in detail to his class;—observations which it now appears were given by me to the last meeting of the British Scientific Association as my own, and which Dr. Knox no where intimates that I did not derive from him. And when to all these are added the circumstances known to many, that Dr. Knox had an opportunity of seeing the uterus in question at the time mentioned, and in my presence—that I was in frequent communication with him—and that I was on terms of friendship with some of the gentlemen attending his class—the obvious and unavoidable inference must be, that I had pointed out at the British Association certain anatomical facts as having been ascertained by myself, while in truth I was indebted to Dr. Knox for them; and that he, from a feeling of delicacy, refrained from charging me openly with plagiarism.

This, sir, is the view which I take of Dr. Knox's communication, and I know it to be that of all my friends whom I have consulted on the subject. I beg, therefore, that you will bear with me while I shew the falsity of these aspersions, and the deceitful conduct which Dr. Knox has pursued towards me on the present occasion.

I may state here most distinctly, for the purpose of avoiding confusion, that I intend to restrict myself entirely to that part of Dr. Knox's paper where he describes the passage of tufts of placental vessels into the uterine sinuses, the reflection of the inner coat of the venous sinuses upon these tufts, and their mode of distribution — points which gave me a key to the views of the relation of the blood-vessels of the mother to those of the fœtus, which I have adopted, and in which there is a wonderful uniformity between the abstract of my paper published in the Athenæum, and the description of them given subsequently by Dr. Knox. As my paper is in the hands of the Editor of the Edinburgh Medical Journal, and will be published in the next number, those who feel interested in the abstract may have an opportunity of ascertaining the views I have taken, and how far they agree with or differ from those of others. In the meantime I may be allowed to state that no one who is acquainted with Weber's views, as propounded by himself in Hildebrandt's Anatomy, or from the analysis of them given in the British and Foreign Medical Review for January 1840, p. 27, can for a moment suppose that the tufts I have described are in any way identical with those of Weber. This, however, has nothing to do with the question presently at issue between Dr. Knox and myself.

On the 15th of March, 1839, I obtained a portion of uterus with the whole of the placenta attached, and immediately afterwards began to examine the mode of connexion between them, by detaching them under water: this was continued for a part of several days afterwards. While thus engaged I was visited by Professor Alison, by Dr. J. Y. Simpson, Professor of Midwifery, by Dr. Ziegler, Assistant Physician to the Lying-in Hospital, and Dr. James Duncan, Assistant Surgeon to the Royal Infirmary. These are the gentlemen alluded to by Dr. Knox, when he states that when he first saw the preparation "it had beed repeatedly handled and examined by others." I had also a visit from Dr. Knox, when I pointed out to him all I had observed, and continued the dissection in his presence. This was the only time he saw it till after the meeting of the British Association, and as I was present all the time, and as I conducted the dissection myself, Dr. Knox being merely a spectator, I can with all the solemnity of an oath declare, *that the various dissections stated by Dr. Knox to have been made on that occasion were not then made.*

It may be necessary to point out distinctly what observations I made at these examinations, and to prove that I explained them to Dr. Knox. In these examinations I ascertained that various tufts or cellular-looking bands proceeded from the maternal surface of the placenta, and dipped into the mouths of the uterine sinuses, and I supposed that these contained blood-vessels. I have the positive testimony of Professors Alison and Simpson, and Dr. Zeigler, (vide documents 1st and 2d) that I had pointed out all this to them, and as these gentlemen, together with Dr. Duncan and Dr. Knox, were all who were present while I was examining the uterus at this time, we have Dr. Knox's own testimony that this must have been at a period antecedent to his visit. In addition to this we have the direct testimony of Dr. Duncan to prove that I also pointed out to Dr. Knox the appearance described above, (vide document 3d.) As this is all that I pretend to have made out till August 1840, I have next to examine what evidence Dr. Knox has adduced in proof of his assertion that he knew more than I explained to him.

With the view of giving Dr. Knox an opportunity of satisfying me on this point, I desired a friend to call on him to request an excerpt from the notes which he dictated in 1839 to Mr. King, to ascertain if by any possibility the serious charges which I was about to bring against him were not justifiable. This reasonable request he has more than once refused. And I find myself placed under the necessity of publishing a document from Mr. King, the gentleman to whom Dr. Knox dictated his description, containing that gentleman's impression of what occurred at that time, (vide document 4th.) This letter is not given by Mr. King as an exact account of what occurred, but merely as his present impression of what he then wrote. It is valuable, however, as shewing that his impressions of what he wrote that time correspond very exactly with what I have proved was pointed out by me to Dr. Knox. That Dr. Knox may have told his class in 1839, that certain bands or tufts passed between the placenta and the uterine sinuses—that they dipped into these sinuses, and were apparently composed of blood-vessels—I do not mean to deny, for I have proved on the most satisfactory evidence that I had previously explained all this to Dr. Knox.

The statement made by Dr. Knox, that there were transverse sectio[illegible] the uterus and placenta at the ti[illegible] examined it in 1839, I can prov[illegible] incorrect by the testimony of Dr. [illegible] and Mr. Goodsir (vide document 2nd and 5th); and I could also show the erroneousness of some of the other statements, were it necessary.

After I had made the observations I have mentioned, I put the preparation into spirits, and carefully laid it aside for subsequent examination, and it never, until after the meeting of the Association, was out of my possession, except for part of a day during last winter session, when Professor Alison showed it to his class. In August last I pointed out these placental tufts passing into the uterine sinuses to Professors Sharpey and Allen Thomson, who were then in Edinburgh, and very shortly after this proceeded to complete the observations which I detailed to the Association at Glasgow. Before I went to Glasgow, I mentioned generally to Dr. Knox the results at which I had arrived; and shortly after returning I had several visits from Dr. Knox, during which I explained to him, with the help of my preparations and diagrams, all I knew on the subject; and he never once hinted to me that he had ever entertained any such views, or that he was carrying on independent observations on my preparations without leave being asked or obtained; and as several persons were fortunately present, I can prove this by the most satisfactory evidence (vide documents 6th and 8th): and I have also Mr. Goodsir's testimony (document 5th) that he had likewise explained my views to Dr. Knox. Notwithstanding all this, Dr. Knox has had the hardihood to assert, that he could not tell whether his views agreed with mine or not, as all that he knew of the result of my investigations was derived from the Athenæum. That Dr. Knox, until after the meeting of the British Scientific Association last September, was not only entirely ignorant of the true nature of these tufts, but had actually denied that they could be blood-vessels, to Mr. William Mackenzie, Lecturer on Practical Anatomy in the University—and that he also about the same time calle[illegible]stion the refle[illegible] the inn[illegible]he venous si[illegible] mo[illegible]se tufts, to[illegible] Glo[illegible]n Mecha[illegible] soph[illegible] Marr, L[illegible] Midw[illegible]t from th[illegible] testim[illegible] gentleme[illegible] docum[illegible].)

What[illegible]rce of a[illegible] [illegible]timony[illegible]to Dr. K[illegible] [illegible]ents,[illegible]escribed[illegible]

1839 the distribution and mode of termination of the vessels composing these tufts in the sinuses, and that he explained the manner in which the inner coat of the sinuses is reflected upon them, I leave it to the public to judge. The assertion that he made out all this in 1839, appears to have been an afterthought, for neither I nor any of my friends heard of it, until a short time before his paper appeared in the GAZETTE (vide document 5th.)

I have only farther to add that if Dr. Knox's statements, contained in the MEDICAL GAZETTE, had been restricted to Edinburgh, where he is well known, they would only on this, as on former occasions, have afforded subject of amusement to my friends and myself.

I have the honour to be,
Your most obedient servant,
JOHN REID.

Edinburgh Royal Infirmary, Nov. 9, 1840.

DOCUMENT I.

Edin., 23, Buccleugh Place, Nov. 4, 1840.

My dear Sir,—In reply to your inquiries I beg to state the following circumstances. Some time in March 1839 you gave me an opportunity of examining an impregnated uterus, which had been removed from the body of a woman who had died from cerebral disease, between the sixth and seventh month of gestation. On separating under water, a portion of the placentary mass from the inner surface of the uterus, to which it adhered, you pointed out to me a number of minute cellular-looking bands, which, proceeding from the uterine surface of the placenta, and passing through the decidua, seemed to penetrate the inner surface of the uterus. These cellular bands, I very distinctly recollect, were regarded by you as being made up of minute vessels passing between the fœtal and maternal structures, and in this view you were the more confirmed by observing, that when one of them was torn across, a globule of blood was seen to ooze fron its ruptured extremity. That the opinion which you at that time entertained of the structure alluded
was correct, has been amply verified
your subsequent observations, by
ich you have satisfactorily ascer-
l that rst sight, seemed
b fact, the prolon-
vessels of the
forating the
ing tufts in
my dear sir,
cerely,
ZIEGLER.

DOCUMENT II.

In the spring of 1839 I saw Dr. Reid very carefully dissect off (under water) a portion of the placenta from the internal surface of the uterus of a woman who had died of apoplexy in the Royal Infirmary. In making this dissection Dr. Reid demonstrated to me that an organic tissue passed between the uterine surface of the placenta and the openings of the venous sinuses of the uterus, and bound the surfaces of the placenta and uterus intimately together at the site of these openings. Dr. Reid supposed this connecting organic tissue to be vascular, and tried to ascertain its nature at the time by blowing air into the neighbouring vessels.

(Signed) JAMES Y. SIMPSON,

Nov. 5th, 1840.

The above statement by Dr. Simpson exactly agrees with my own impressions of Dr. Reid's examination of the uterus and placenta in question, in Spring 1839.

I can state farther that I exhibited the same uterus and placenta to my class in spring 1840, and at that time no transverse sections had been made through the placenta and uterus.

(Signed) W. P. ALISON, M.D.

Edinburgh, Nov. 9th, 1840.

DOCUMENT III.

I was present on several occasions during the month of March 1839, when Dr. Reid was examining an impregnated uterus in the Royal Infirmary. Dr. Knox was present on one of these occasions, and I have a distinct recollection of Dr. Reid pointing out to him certain bands or tufts passing between the uterine surface of the placenta and the mouths of the uterine sinuses. So far as I could judge from the questions of Dr. Knox the structures pointed out to him by Dr. Reid appeared to be entirely new to him.

(Signed) JAMES DUNCAN, M.D.
Assistant Surgeon Royal Infirmary, F.R.C.S.E.

Nov. 4th, 1840.

DOCUMENT IV.

One evening, about the month of March 1839, Dr. Knox asked me to write to his dictation an account of some dissections he had witnessed at the hospital. Among others was that of a woman —— months advanced in pregnancy. He stated that on tearing the placenta from the uterus numerous small slips or points were observed running from the placental vessels into the surface of the uterus, and that they were bloody at the torn extremities.

Having arrived at this point it is my impression Dr. Knox broke off his dictation, telling me that he would renew it again, and that he thought the case would throw some light on the mode in which the fœtus in utero is nourished, but of the mode in which this was effected Dr. Knox said nothing; nor, as far as I remember, did he say that he had ever seen any thing of the same nature before.

(Signed) Kelburne King.

Oct. 28th, 1840.

DOCUMENT V.

Edinburgh, Nov. 4th, 1840.

Having been requested by Dr. Reid to answer certain queries regarding his late researches into the mode of connection between the mother and child, I have to state that in the beginning of August 1840 I assisted him to inject from the cord a placenta adherent to the uterus, but separated from it to a considerable extent round the edges. There were no transverse sections of the uterus and placenta at this time, but I was present twenty-four hours afterwards, when he commenced his investigations by making sections.

In conversations with Dr. Knox on the subject of Dr. Reid's researches, I explained to him the result at which he had arrived. Dr. Knox did not, in these conversations, mention to me that he had examined the structures in question, or that he had come to the same conclusions as Dr. Reid. In a later conversation, however, he informed me that in March 1839 he had, on a placenta and uterus in Dr. Reid's possession, made out the structures which he afterwards ascertained to have been described by Müller, and that he had, on the day of his discovery, or soon after, explained it to his class, but that he did not inform Dr. Reid of it.

(Signed) John Goodwin.

DOCUMENT VI.

We have been repeatedly present when Dr. Knox and Dr. Reid were conversing on the connections between the placenta and the uterus, and our impression has always been that Dr. Knox was, like others who visited Dr. Reid for that purpose, receiving information on discoveries entirely new to him. We have again and again, in the course of last autumn, seen Dr. Reid demonstrating to Dr. Knox the particulars of his views on placental anatomy, and never heard a syllable from the latter conveying the remotest hint that he had ever entertained similar views.

(Signed) William Henderson, M.D.
F.R.C.P., Physician to the Royal Infirmary, and Lecturer on the Practice of Physic.

(Signed) J. H. Balfour, M.D.
F.R.S.E., Lecturer on Botany.

DOCUMENT VII.

Dear Sir,—In answer to your inquiries I have to state, that a few days after the meeting of the British Association at Glasgow, I had a long conversation with Dr. Knox, in relation to the communication on the structure of the placenta, which you had then made. *He repudiated* the idea that the tufts you had described as being present in the uterine sinuses were blood-vessels, and he said, moreover, that all analogy was against such a supposition. In that opinion of the Doctor's I at that time agreed; but I may state that I have since carefully examined your preparations, and that I am now satisfied of the accuracy of your description.

Yours truly,

(Signed) William Mackenzie.

Dr. J. Reid.

DOCUMENT VIII.

19, Buccleuch Place, Nov. 3d, 1840.

Having been applied to by Dr. Reid, I beg to state, that a few days after the meeting of the British Association, I was present with Dr. Marr, in Dr. Reid's apartments in the Royal Infirmary, and while Dr. R. was pointing out, on sections of an impregnated uterus, and on diagrams, his views of the relation between the vessels of the mother and fœtus, Dr. Knox came into the room, and put various questions to Dr. Reid regarding his opinions on the subject. I recollect that Dr. Knox expressed some doubts about the reflection of the inner coat of the venous sinuses upon the tufts observed in these sinuses. Dr. Reid repeated his demonstration, and endeavoured to support his views by a reference to his preparations, but whether to Dr. Knox's satisfaction or not I do not know, as I left while they were conversing on the subject.

Certainly I did not hear Dr. Knox lay any claim to the peculiarities of Dr. Reid's views.

(Signed) George Glover.

The above is a correct statement, as far as I can remember, of what occurred on the occasion referred to by Mr. Glover.

(Signed) James Marr.

THE

LONDON MEDICAL GAZETTE,

BEING A

WEEKLY JOURNAL

OF

Medicine and the Collateral Sciences.

FRIDAY, NOVEMBER 27, 1840.

LECTURES ON THE PRINCIPLES AND PRACTICE OF PHYSIC,

Delivered at King's College, London,

BY DR. WATSON.

LECTURE X.

Inflammation continued. Buffy coat of the blood. Terminations or events of inflammation. Resolution; delitescence; metastasis. Effusion of serum. Effusion of coagulable lymph, or fibrin. Organization of this lymph. Suppuration. Ulceration.

IN the last lecture, after giving a very general sketch of the phænomena of inflammation, I particularly considered its four characteristic symptoms—pain, heat, redness, and swelling: and endeavoured to describe the changes that take place in an inflamed part, as they are seen through a microscope.

Buffy coat of the blood.—There is one very remarkable and important circumstance which is not often absent in cases of inflammation, but which hitherto I have barely mentioned: I mean a peculiar appearance of the blood itself after it has been drawn from a vein. A portion of the fibrin at the upper surface of the coagulum parts with its colouring matter; so that upon the deep red clot there is to be seen a layer of a yellowish, or sometimes of a bluish white colour, varying in thickness from a line or two to perhaps three-fourths of an inch. This uppermost whitish layer of the coagulum is called in this country the *buffy coat* of the blood. Sometimes the surface of the buffy coat is flat and wide; but often it is contracted and concave; *i. e.* the diameter of the buffy surface is less than the diameter of the lower portion of the clot, and it is hollowed out into a cup-like form. Accordingly the blood is said, in these circumstances, to be both buffed and cupped. The formation of this buffy coat appears to be favoured by many circumstances which have nothing to do with the disease under which the person may be labouring; such as the size of the aperture in the vein, the manner in which the blood flows, the form and size of the vessel that receives it: but it does not occur at all except in certain conditions of the system; and it belongs so especially to the state of *inflammation*, that blood having the buffy coat upon it is often spoken of as *inflammatory blood*, or, with less propriety, as *inflamed blood*. Both these expressions indeed are incorrect, for inflammation sometimes exists without buffy blood; and buffy blood sometimes occurs without inflammation. The phænomenon is, however, upon the whole, a very valuable index of the nature of many cases of disease, and an important guide in their treatment.

Now this crust, or upper layer, or buffy coat, consists of pure fibrin, mixed with a certain quantity of serum, which M. Gendrin says is fuller of albumen than the rest of the serum. You will not fail to notice the great analogy that subsists between the buffy coat and the coagulable lymph poured out in inflammation, either into the texture of the part; or (as I shall shew you more particularly by and by) upon its surface, forming what are called false membranes. Both in appearance, and in chemical composition, the two seem to be identical; and no doubt exists in my mind of their being actually the same substance: the separation in the one case taking place from the blood while contained in its proper vessels; in the other case from the blood after it has been removed from the body.

There has been a great deal of speculation among pathologists as to the cause of this buffy coat. From its situation it is plain that gravity has something to do with its formation: that the red particles, leaving the colourless fibrin before it coagulates, sink downwards by their own weight. But though the *subsidence* of the red particles is occasioned by their greater specific gravity, their *separation from the fibrin* is not to be explained upon that principle alone. If it were, then it would follow that the slower the coagulation of the blood, the more time would there be for the sinking of the red particles, and the thicker and more decided would be the buffy crust: and it used to be supposed that this was the true explanation of the phænomenon. Careful observations, however, have shewn that the formation of the buffy coat often takes place when the coagulation of the blood is unusually rapid. Dr. Davy and M. Gendrin both state, as the result of much attention to the subject, that the coagulation of blood drawn from a vein during inflammation begins sooner, and is more quickly completed, than that of healthy blood. But certain observations made and published by Dr. Stokes have settled this question. He noted the appearance of the blood in 27 cases. In 15 of these the buffy coat presented itself; in 12 it did not. Now in 3 of these 12, the coagulation of the blood did not begin till from 20 to 40 minutes after it was drawn; and in 4 others there was no coagulation for 8 minutes. So that there was plenty of time for the red particles to have left the fibrin, and subsided; but they did not do so. On the other hand, in 12 out of the 15 cases in which the blood *was* buffed, the coagulation took place in 5 minutes; and in the remaining 3 it was only delayed 14 minutes.

The slowness of the coagulation, therefore, although it may and doubtless does *favour* the subsidence of the red particles when they have a tendency to subside, cannot be regarded as the cause of the buffy coat. The red particles very soon begin to subside when they subside at all: you may tell, immediately after it has been drawn, and prior to any coagulation, that blood is about to buff, by a peculiar bluish hue on its surface. A German writer, Schroeder Van der Kolk, has stated observations to the same purpose, shewing that in the blood abstracted by venesection during inflammation there is an unusual disposition to a separation of the fibrin from the red particles: a sort of *repulsion* between them. This separation takes place in mere films of blood, so thin as not to admit a buffy stratum to be laid above a red stratum. The fibrin and red particles then separate from each other laterally by horizontal movements, and the films acquire a speckled or mottled appearance, quite as characteristic of the state of the blood as the buffy coat itself.

That the formation of the buffy coat depends, however, upon some *vital* change in the blood appears probable from this—that it will sometimes vary greatly in different portions of blood abstracted at the same bleeding. Thus if the blood be received into four different cups in succession, it will perhaps be buffy in the first, and in none of the others; or it will be buffy in the last only; or in the second and third only, the first and fourth cups being free from buff. Attempts have been made to explain these rapid variations. Some have fancied that the inflammatory state having been remedied by the removal of a certain quantity of blood, the blood that flows subsequently is *therefore* without the usual index of the presence of inflammation; but this explanation will not apply at all to those cases in which the portions last drawn are the only portions that exhibit the buffy crust. Others have suggested that the state of the nervous system is principally concerned in these sudden changes—that the depression caused in the outset of the bleeding by fear, and the faintishness produced towards its termination by the loss of blood, may prevent the appearance of the buffy coat on the first and last cups, when it shews itself only in those that are intermediate between the first and last. We cannot rely much on these hypothetical explanations: I mention them to impress upon your memory the facts which they are intended to explain.

There are two or three different forms presented by buffy blood; and with these you ought to be familiar.

In one form the buffy coat is thick, tough, contracted, puckered at its circumference, and its surface is cupped. There is a complete separation of the red particles, and a strong aggregation of the particles of the fibrin among themselves. The red portion of the coagulum is also, in these cases, round and contracted, of a globular shape, firm, detached from the sides of the vessel, and floating, generally, in transparent serum.

This is usually seen when the inflammation is violent; when it occurs in strong and vigorous constitutions; and more I believe when it has its seat in certain tissues, in fibrous and serous parts especially.

In another form, the whole coagulum is large, like a cake, or of the shape of the vessel containing it, not so much collected into a spherical form: and the buffy coat is thin and flat, and easily broken. Here there is an imperfect separation of the colouring matter from the fibrin, and no great aggregation of the particles of the latter. This kind of buffy blood is apt to accompany slight or partial inflammation.

In a third form, the buffy coat is thick and abundant, but it is flat and soft, loose and flabby, like paste, and the coagulum often adheres by its edges to the vessel in which the blood has been received: there has been considerable separation, and but slight aggregation. The serum is apt to contain a few red particles distinct from the clot. Such blood is commonly said to be *sizy*. Dr. Alison states that when it is observed, some other cause of general disorder of the system (continued fever, for example) usually co-exists with the local inflammation.

It is a curious fact that blood drawn by leeches never exhibits the buffy coat. It seldom appears (yet I have seen it) upon blood that has been removed by means of cupping glasses.

Arterial blood is liable to the buffy coat. I have myself twice at least seen the buffy coat on blood drawn from the temporal artery. One of the patients was violently maniacal when the blood was taken. The other was labouring under acute inflammation of the membranes of the spinal cord, of which inflammation he died.

Blood is more likely to buff, *cæteris paribus*, when it is made to flow in a full stream, and when it is received in a deep and narrow vessel.

On the other hand, the formation of the buffy coat appears to be hindered, when the blood trickles from a small opening in the vein, and when it is caught in a large flat vessel. It is said also that the buffy coat may be prevented by adding to the blood a solution of caustic potass; by keeping it for some time in a state of agitation; by receiving it in a very cold vessel; or by suffering it to fall from a height of three or four feet. In this last case M. Gendrin supposes that the prevention is owing partly to the agitation which the descent of the stream produces in the blood already in the vessel, and partly to the circumstance that the blood is cooled as it passes through the air.

It is seldom, I believe, that the buffy coat appears on blood drawn at the very outset of inflammation; generally a day or two elapses before it shews itself.

I have dwelt the longer upon this peculiar appearance of the blood, because it really is of very great importance in determining the nature of various complaints, and in directing our treatment of them. Speaking generally, when a given organ is inflamed, the buffy coat is more marked in proportion to the intensity of the inflammation: when the organ is not known, it is more likely to be of a fibrous or a serous texture, in proportion as the blood is more decidedly buffed. The appearance of the buffy coat is especially valuable as an indication of treatment in cases concerning which we are in doubt, whether they are inflammatory or not. On the other hand, if we have good evidence, in other symptoms, of the existence of inflammation, we are not to be shaken in our opinion by the absence of the buffy coat. Inflammation may certainly exist without it. I am not speaking now of slight cases of inflammation, which do not disturb the general system. You would not look for buffy blood in the inflammation that supervenes on a cut finger, or in a small boil; but in serious inflammation, attended with pyrexia, the buffy coat may be wanting. It is not unfrequently absent in inflammation of the mucous membranes, especially in inflammation of the mucous lining of the bronchi.

I stated before—what it is quite necessary to remember—that buffy blood is not confined to cases of inflammation. The blood of persons affected with general plethora is often found to present a buffy coat: and the same thing is true in respect to pregnant women.

Buffy blood is no necessary measure of the *danger* of the disease. The blood drawn in acute rheumatism is always very much buffed and cupped: yet so long as the disease is confined to the joints, it is quite free from danger.

Neither is the appearance of buff on the blood, taken by itself, a sufficient warrant for abstracting more blood: for the blood will sometimes, in common inflammation, continue to be buffy, long after it has ceased to be useful, or safe, to bleed the patient.

Events of inflammation.—Some pathologists enumerate several *terminations* of inflammation. Others quarrel with that word, as inappropriate; alleging, with great truth, that the inflammation does not necessarily cease or terminate whenever these so-called "terminations" happen. Some of them are in fact "co-existent states, or successive stages in the progress of the same inflammatory disease." It has been proposed to speak rather of the *local effects* of inflammation; but even this phrase is not free from objection, for sometimes (though rarely) there are no local effects produced, beyond the four symptoms which characterize the inflammation itself. I think the *events of inflammation* is an expression not open to similar cavils. I have no ambition to introduce new modes of speech, unless when those that are already in use are inexact or inapplicable. It is enough if you clearly comprehend the meaning of the terms I employ. Among the events of inflammation I include only the *local* changes observed in its course. To those which are constitutional I must afterwards revert.

You will recollect that I did allude, in the last lecture, though in a very brief manner, to these local events of inflammation. Their frequency and importance renders it necessary that we should consider them somewhat more particularly.

Resolution.—One of these events is the simple subsidence or *resolution* of the inflammation: this may strictly be called a *termination* also. The congestion of the blood-vessels increases till the blood stagnates in some of the capillary canals towards the centre of the affected part, which is then said to be *inflamed;* but the disease goes no farther; there is no escape of the blood, or of any part of the blood, or of any of the constituents of the blood, beyond its natural channels; or, at any rate, there is no *sensible* evacuation into the inflamed tissue, or next to none. The inflammation begins to recede; the stagnant blood is again set in motion; if there have been some slight effusion, it is reabsorbed; the rapidity of the circulation in the surrounding vessels diminishes; and the part returns, in all respects, to its former condition and integrity. This may be considered the spontaneoûs cure of inflammation; and to this event there seems to be always a natural tendency. It may be promoted sometimes by art.

Delitescence and metastasis.—When the process of resolution is unusually *sudden* and *rapid,* (as it occasionally is, the well-marked phænomena of inflammation completely disappearing in a few hours,) it is called by our neighbours, the French, *delitescence.* And when the symptoms of inflammation thus suddenly desert one part, and shew themselves immediately afterwards in another, (as not unfrequently happens in respect to the joints in acute rheumatism, and between the parotid gland and the testicle or mamma in the mumps,) *metastasis* is said to take place.

This transference, as it were, of morbid action, from one part to another, is a very curious circumstance. It is one which we sometimes endeavour to imitate. We excite inflammation upon the surface, where we know its effects will be of comparatively little consequence, in the hope of *diverting* it from some internal organ in which it threatens to work serious or even fatal changes. We follow the same principle perhaps where we apply purgative medicines to the mucous membrane of the alimentary canal. To denote this mode of cure, by stimulating distant parts, the terms *counterirritation, derivation,* and *revulsion,* are employed.

Most commonly, even under moderate inflammation, *some* amount of extravasation takes place into the texture or from the surface of the part.

Serous effusion.—The first effect or event of that kind which we notice, is the pouring out or *effusion* of *serous* liquid. The liquid is so like the serum of the blood, that it is called serosity or serous liquid, and there can be no doubt, I conceive, that it consists of the serum of the blood, slightly modified perhaps. You will recollect my stating that the swelling which accompanies phlegmonous inflammation is not equally firm throughout the whole extent of the inflamed part; that it is hard in the centre, softer towards the circumference; and that in the latter situation it sometimes retains for a few seconds the impression of one's finger;—*pits.* Now this results from the effusion of serous fluid in the cellular tissue immediately surrounding the part inflamed: it is neither more nor less than *œdema:* œdema, (which may exist also quite independantly of inflammation) being a filling or infiltration of the cellular tissue with serous fluid. Anasarca is an example of the same state, on a larger scale. Now anasarca is very constantly produced by some impediment to the passage of the blood along the veins; the serous portion of the stagnating blood transudes through the coats of the vessels: and I apprehend that the same explanation may be given of the less extensive œdema which takes place around a phlegmon; the blood being stagnant in the neighbouring capillaries.

But whatever may be the intimate cause of serous effusion, it is one of the earliest events of inflammation; and in some cases it is its most important event, producing, mechanically, new symptoms, and giving rise to conditions of the most perilous kind. The quantity of serous fluid poured out in a short time is often immense. One of the pleuræ may be thus filled in a few hours, and the whole of one lung strongly compressed, and the respiratory apparatus reduced to one-half of its customary efficiency. And if inflammation and effusion should take place on both sides of the chest at once, if *double pleurisy* should occur, as it sometimes does, the patient must presently perish by apnœa, unless his condition is recognized, and free vent is given to the fluid. More than once or twice have I seen persons snatched from the brink of suffocation by what is called *tapping* the chest. Fatal coma is no uncommon result of the effusion of serosity, as an event of inflammation, into the ventricles of the brain.

Even in the cellular tissue, where it is properly enough called œdema, a very trifling amount of this serous effusion may be sufficient to destroy life: when, for instance, it takes place into the submucous cellular tissue of the glottis, closing up by its pressure the little chink, the rima glottidis, and suffocating the patient after another fashion. Here also art may come to the rescue: an *artificial* chink or hole is made for the entrance and exit of air, below that part of the larynx in which the disease is situated, and the patient is delivered from imminent death. I have had two cases under my own care, and have seen several others, in which life *was* so preserved. I allude to such cases now, merely to convince you of the importance of attending to this event of inflammation, and of studying the indications of its existence.

Sometimes some of the small vessels give way, and *hæmorrhage* into the part becomes an event of inflammation. Some slight degree of this occurs probably in most cases; and we frequently find that the colouring matter of the blood is mixed with the other effusions, giving to the serous liquid a deep tinge of red.

I hinted before, that we must not infer inflammation from the presence of serous effusion *alone*. Serum will exude, I believe, from loaded veins, even after death; but this never can be much in amount. It is certain that dropsical effusions may be, and very often are, the result of congestion of a purely mechanical kind.

Effusion of coagulable lymph.—A third *event* of inflammation is the effusion of what is called *coagulable lymph*, which, as I explained to you before, appears to be nothing else than the fibrin separated from the other constituents of the blood, and concreted. It is poured forth, at first, in a state of solution, or in a soft semi-fluid condition, and mixed with more or less serosity; but the more fluid parts of the effusion are either soon reabsorbed, or soon separate themselves from the lymph, which becomes firmer, and at length solid. The hard central portion of a phlegmon, in its earlier stages, owes its hardness to the presence of coagulable lymph in the natural interstices of the inflamed part; and a similar interstitial deposit of the same substance is common in various parts of the body, as a result or concomitant of inflammation. What is called hepatization of the lung is one instance—the spongy texture of the lung is blocked up and solidified by this lymph. In certain cases of erysipelas, as well as in phlegmonous inflammation, the subcutaneous cellular tissue is rendered dense and hard in the same way. The white opaque spots which are often seen upon the cornea are produced by lymph interposed between the layers of that naturally transparent structure. But the most striking examples of the effusion of coagulable lymph are to be seen upon the surfaces of inflamed membranes: it forms a web or layer which by degrees assumes, itself, a membranous appearance; and is accordingly called by morbid anatomists a false or an adventitious membrane. Sometimes several layers of this kind are spread over each other, forming adventitious membranes of great thickness. When coagulable lymph is thus poured out between membranes that are habitually in contact with each other, it often causes them to cohere together—just as two leaves of a book may be made to stick together by a layer of paste or glue put between them. This is very common indeed with serous membranes, especially the pleuræ, the pericardium, and the peritoneum. Lymph is said also to be poured out, under violent inflammation, from mucous surfaces. In croup, the interior of the trachea is inflamed, and a substance exudes which assumes a membranous form, and adheres more or less firmly to the sides of that tube, or is coughed up in ragged fragments. A similar effusion takes place occasionally from the mucous lining of the alimentary canal, and is expelled, with the other contents of the bowels, in shreds, or in tubular portions, which are, in fact, casts of the interior of the gut. I say *coagulable lymph* is *said* to be thus poured out; but it is more than doubtful whether the false membranes in these cases are really composed of fibrin. Similar films form within the uterus, and are moulded to the exact shape of its cavity, and marked with indentations that correspond to its rugæ; and these membrane-like casts are at length separated and extruded. These last are not very common; but I shew you one which came from the uterus of a young woman who was a patient of mine in the Middlesex Hospital not very long ago. You may see lymph deposited like beads, upon the anterior surface of the iris under inflammation; or glueing its posterior surface to the crystalline lens behind it, and rendering the pupil irregular, and sometimes immoveable. The internal surface of the heart, and especially its valves, are often studded with portions of lymph much resembling warts. When the opposite sides of an artery are brought together by a ligature, they inflame, and become united by the same medium. Coagulable lymph is effused, in the course of a few hours, upon the edges of a cut wound; and they adhere, under favourable circumstances, when placed in mutual apposition. This surgeons call union by *the first intention*: and the inflammation which is accompanied by this kind of exudation of lymph, or fibrine, is called *adhesive* inflammation; or the *adhesive stage* of inflammation.

It is seldom that coagulable lymph *alone* is thus poured out. Sometimes it is mixed with the colouring matter of the blood. Oftener it is mingled with, or at first dissolved in, a large quantity of serous fluid. When this happens in serous bags—as in the pericardium or pleura—the thinner fluid may keep the opposite membranes apart; and for some time, or entirely, prevent their agglutination. Sometimes the agglutination is partial, and the uniting portions of lymph are stretched out, by the distending effect of the fluid effusion, or by the natural movements of the parts, into strips or bridles of adhesion.

I must call upon you to notice, in passing, that although this event of inflammation may sometimes perhaps have a detrimental or destructive consequence, yet that in a vast majority of instances it is distinctly a salutary and conservative event. Vision may, no doubt, be destroyed by a plug of lymph which shuts up the pupil of the eye. A portion of intestine may become strangulated by a band of adhesion. Of this, which is a mere accident of the adhesion, I have seen some fatal examples. The closure of the trachea by the membrane of croup is not, in my opinion, a fair case in point. There are, at any rate, but few exceptions to the rule, that the effusion of coagulable lymph proves beneficial by preventing some worse event of the inflammation. It is better that inflammation of the cellular tissue should be limited and hemmed in by a barrier of lymph, than that it should extensively diffuse itself. It is better that the bag surrounding the heart, when it happens to be inflamed, should become adherent to that organ, than that the inflammation should run on into suppuration, and fill the pericardium, and oppress the heart, with pus. In the one case life may continue for several years—in the other it seldom lasts many days. It is clearly more desirable, and more consistent with the safety and comfort of the patient, that his lungs should be fastened to his ribs, than that they should be compressed and flattened against his vertebral column. I shall have occasion so frequently to speak of this protecting and reparative tendency of adhesive inflammation, that I do no more than point it out to you at present.

When lymph has been effused upon an inflamed surface, it very readily becomes vascular and *organized*. Red streaks begin to be visible in it. These are incipient blood-vessels, which may soon be seen to communicate freely, and to be continuous with the blood-vessels of the inflamed part. The plastic lymph is fashioned into a definite structure, and made a living constituent portion of the body. It is in truth this remarkable *plastic* property belonging to the effused lymph, this aptitude for being organized, which invests the adhesive inflammation with its guardian and reparative character. None of the other fluids poured out under inflammation are capable of this change. It is in this way that the lips of recent wounds, and the surfaces of inflamed membranes in contact with each other, are permanently stitched together (if I may use so homely a metaphor) by living vascular threads. By this needle-work of nature parts recently severed from the body may sometimes be replaced; or even transferred and affixed to other situations, as in the Talicotian operation, whereby a new nose is engrafted in the place of that which had been lost. It is thus that ulcers fill up; successive layers of lymph exude, and are in succession attached to the ulcerated surface, and incorporated by this organizing process, until the breach of texture is repaired. The lymph thus organized comes at last to resemble, very exactly, cellular tissue, more or less condensed. And thus, as I pointed out to you in a former lecture, a texture, identical in its nature with an original texture of the body, is formed as it were *de novo*, and is capable of undergoing the same transformations with the natural texture.

The length of time required for the pouring out of coagulable lymph in inflammation—and for its organization after it has been poured out—is variable under different circumstances. It is often effused very early. Dr. John Thomson found a distinct layer of it covering wounds he had made in an animal, in less than four hours after they had been inflicted; and cases are related, in which vascular organization of the effused lymph has appeared to have been effected within the space of twenty-four or thirty-six hours. Sometimes, on the other hand, many days seem to elapse before any such organization is observable.

When serous fluid and coagulable lymph have been poured out in considerable quantity, and simultaneously, the serous fluid is often rendered turbid by the admixture of small portions of lymph, or of albumen, diffused through it; and *flakes* of lymph sometimes float in it, or settle, in virtue of their specific gravity, at the lowest part of the cavity containing the effused matters.

Several conditions seem necessary to ensure this adhesive form, or adhesive stage, of inflammation. The inflammation must reach a certain degree of intensity, or no lymph will be effused; it must not go beyond a certain degree of intensity, or the next *event* I have to mention, the formation of pus, will interfere with the adhesive process. We learn also from what takes place in recent wounds, that seclusion from the air, and the absence of all other causes of irritation, are necessary for adhesion, or union by the first intention.

Suppuration.—The formation of *pus*—*suppuration*, is a fourth *event of inflammation*, to which brief allusion has already been made.

Many opinions have been broached respecting the nature of pus, and the manner in which it is formed. I shall not trouble you with discussing, or even with narrating them, but limit myself to stating what are the notions held on these points by the most able and the most recent observers.

Pus then, as I told you before, is altered blood. It is an opaque, smooth, yellowish fluid, of the consistence of cream, and having no smell. I speak now of well-formed, or what is called good, or healthy pus—what the old writers spoke of as *pus laudabile*. This has been thought an absurd epithet: but it serves as well as any other to express what was meant, viz. that kind of pus which accompanies benign forms of inflammation, and indicates that all is going on regularly, and promises a fortunate ending: pus, in short, the appearance of which was *to be commended*. It is certainly not more absurd than the term *healthy* pus. This pus laudabile was described as being *album*, *læve*, *et æquale*—light-coloured, smooth, and homogeneous. This description of good pus has descended from the time of Hippocrates, who says *Το δε πυο͂ν, αριϛον λευκον τε ἔναι, καὶ ὁμαλον, καὶ λειον, καὶ ὡς ηκιστα δυσῶδες.* It consists of yellowish globules, diffused through a thinner fluid, that resembles in some respects the serum of the blood. "If six or eight ounces of good pus be suffered to stand in a phial, it will separate into two portions: a yellowish matter will sink to the bottom, and there will be a slightly yellow, clear, supernatant fluid, like oil in appearance, but not greasy to the touch." The sediment consists of the globules: there is good reason to believe, with Gendrin, that they are the globules of the blood, altered—deprived of their coloured envelopes, and swollen or enlarged. The changes which they are apt speedily to undergo, from mere exposure to the air, may account for a contrary opinion held by some modern authors.

But there are various modifications of pus; and its qualities are liable to rapid alteration by various circumstances. Sometimes the globules are few in proportion to the more watery part; and then the pus is said to be *ichorous*. It is *sanious* when some of the colouring matter of the blood is poured out with it. It is sometimes viscid and slimy, from an admixture of mucus; or flaky and curdled, which is common in scrofulous persons. Sometimes, also, instead of being inodorous, it is horribly fetid. All abscesses that form in or about the alimentary canal are apt to contain pus of an offensive odour; as those which occur in the tonsils, and near the rectum. A patient of mine, in the hospital, had a fluctuating tumor in the epigastrium, which Mr. Arnott opened. There came out the collapsed bags of two or three hydatids, and a quantity of stinking pus. The liver, no doubt, was the seat of the suppuration in this case—and perhaps the stench might be owing to the death and decomposition of the hydatids.

Great pains have been taken by many persons to discover some sure criterion between pus and mucus. Healthy pus and healthy mucus are so totally unlike each other, that they never can be confounded together. But sometimes we can scarcely say whether we are looking at mucus so altered as to resemble pus, puriform mucus—or at genuine, though not perhaps laudable, pus. I shall tell you what has been made out upon this point hereafter, when I treat of phthisis; and I shall show you at the same time that the distinction is not of that great importance which has been sometimes supposed.

Pus may be poured out into one of the natural cavities of the body, and then it is called purulent *effusion*. It may be contained in a closed cavity, which is not natural, but formed by lymph and condensed cellular tissue; and then the collection of pus is called an *abscess*. It may also proceed from a free surface of the body—as the skin, or a mucous membrane, or a superficial ulcer or sore.

In the natural cavities of the body pus seems, sometimes, to mingle gradually with the serous effusion, which grows turbid and whitish, and at length distinctly assumes a puriform character. But in much the greater number of cases the formation of pus is preceded by the effusion of coagulable lymph, with or without the effusion of serous fluid: the pus in these cases appears to be poured forth or secreted by the coagulable lymph after it has become organized. Its formation seems to characterize a more advanced stage of inflammation—to denote that the inflammation has been pressed a little beyond the adhesive stage. This was the opinion of John Hunter, who was the first to teach us any thing worth knowing about the process of inflammation. It is also the opinion of Gendrin, one of the latest and most successful investigators of that process. Hunter thus expresses himself on this subject: "the new formed matter peculiar to suppuration is a remove farther from the nature of the blood than the matter formed by adhesive inflammation." And Gendrin says, "Between the *purulent fluid* of inflamed tissues, and the *organizable coagulable* fluid (*i. e.* between pus and coagulable lymph) there is but *one* degree of *more*."

Even the preventing or the allowing the access of air to the surface of a recent cut will make all the difference between adhesion and suppuration. And the same influence of the air in promoting the suppurative process in preference to the adhesive is remarkably seen in various other cases. In simple pleurisy—from exposure to cold—we seldom have any liquids effused, except coagulable lymph, and serous fluid. But if the inflammation has been caused by a punctured wound from without, or by laceration of the *pulmonary* pleura by the sharp end of a fractured rib, or by a perforation of the pulmonary pleura by the extension of a vomica in the lung—in all which cases air finds its way into the cavity of the pleura—then true *empyema* results—pus is formed, So also in pneumonia: at first the inflamed lung is rendered solid by the effusion of coagulable lymph into the air cells; but if the inflammation persists, the next thing that happens is what is called by Laennec *grey* hepatization—a puriform infiltration takes the place of the lymph. The same principle is exemplified in the case of the urethra; inflammation of the *free* surface of its mucous membrane leads rapidly to the formation of pus; inflammation of its *attached* surface occasions the pouring out of lymph, which produces stricture. And in general I think it may be said of surfaces that are open to the air, of tegumentary membranes, that either pus is formed upon them, under inflammation, without any previous effusion of plastic lymph, or the lymph is slight in amount, and transient in duration, and presently superseded by a puriform discharge. We have every-day examples of this, in inflammation of the conjunctiva, of the bronchi, and of the bladder. Perhaps it is in this principle that we may find an explanation of the fact that whereas in the inflammation of cellular tissue, of glandular organs, and of the parenchyma of the viscera generally, the pus which forms is collected into an abscess; circumscribed abscess in the substance of the lung, from common inflammation, such as we are now considering, is very rare indeed. This is a point which will of course come under our consideration again.

There is however, manifestly, a close connexion in many cases between the effusion of lymph and the effusion of pus; although the progress and effects of adhesion and suppuration are very different. When suppuration takes place, the pain belonging to the inflammation usually abates, or ceases, except when the pus is imprisoned so as to keep up the pre-existing tension. Certain remarkable constitutional phenomena also declare themselves, which I shall notice again hereafter.

The effusion is longer continued in the case of suppurstion—and the quantity of pus is more copious generally than of lymph—especially in the serous and tegumentary membranes. When pus is diffused through the natural textures it tends to soften and separate them—to break them down: whereas the direct effect of the deposition of lymph in the same parts is to consolidate and harden.

The time required for the formation of pus is extremely variable. It sometimes very quickly follows the commencement of the inflammation; within a few hours, as in gonorrhœa. Sometimes it is postponed to a very distant period, even for weeks.

The duration of the suppurative process is also uncertain, and seems to have no fixed relation o the intensity of the inflammation by which it has been preceded or accompanied.

Ulceration—A *fifth event* of *inflammation* is *Ulceration*. You may remember my telling you that Kaltenbrunner observed the progress of absorption in the inflamed tissues which he examined by the help of the microscope: how the stellated spots gradually vanished from the web of a frog's foot, and the fat from the mesentery of the rabbit.

Independently of these microscopical observations, it is quite evident that absorption goes on, often very actively, during the continuance of inflammation. The effused fluids, or products of inflammation, the serum, the lymph, the pus, are partly taken up again: and not only are these products of inflammation liable to be so removed, but the original textures of the body are carried off by absorption. We cannot have a better proof of this than the progress that an abscess makes to the nearest surface at which the pus it contains may be discharged; the intervening textures are gradually absorbed. Perhaps a great part of the principle concerned in this progressive approach to the surface is *pressure*. The harder tissues of the body, the bones themselves, yield and disappear before the increasing pressure of an aneurismal tumour. In this case the absorption appears to be independent of inflammation.

But taking the process as one of the events of inflammation, we may say with Dr. Alison that, whenever the absorption of the effused lymph, and of the surrounding textures, takes place in excess—in a greater degree, that is, and more irregularly than seems to be required for any useful purpose—the result is *ulceration*. This term is, however, commonly restricted to those cases in which the loss of substance occurs upon some *surface*, internal or external.

Many circumstances influence the occurrence and progress of ulceration; and great differences are observable in the different tissues, in respect to the facility with which they severally ulcerate. Ulceration is most common in the tegumentary membranes. It is frequently met with also in the inner coats of the arteries, in cartilages, and in bones. But we are not always sure that it is in these cases an event of inflammation. Ulceration is rare in fibrous tissues of all kinds, in serous membranes, and in the outer coat of arteries. These differences have important pathological bearings. But I may not stop to consider these at present: they will be particularly noticed as the course proceeds. When I state that ulceration may lead to perforations of the alimentary canal—of the air-tubes—of the gall and urinary bladders—of the blood-vessels; and to the fatal escape of the natural contents of these organs; I have said enough to convince you that ulceration, so frequently the object of the surgeon's care, requires no less attention on the part of the physician.

There are certain forms of ulceration that are specific in their nature: with these I do not at present meddle. The process of ulceration is very clearly explained in Dr. Alison's admirable *Outlines of Pathology*.

There are three things generally going on at the same time in an ulcerated surface. First, there is an effusion of plastic lymph, by which what are called granulations are formed. Granulations consist of coagulable lymph which has become organized; furnished with numerous delicate blood-vessels. Secondly, there is suppuration; and, thirdly, there is absorption or the removal of parts.

Sometimes, apparently, there is no *suppuration*—we see no pus in ulcers of the cornea, nor in certain cases of absorption of articular cartilages.

When the first of these three processes gets the better, if I may so speak, of the others, the lymph overspreads the surface of the ulcer, fills up the cavity, and the ulcer heals: cicatrization takes place.

When, on the other hand, the absorbing process predominates, the ulcer extends itself—the excavation grows larger, or deeper—or both larger and deeper: and when this excess of absorption is great, and the extension of the ulceration rapid, it is called *phagedenic* ulceration. When a part of the textures perishes during the process of the ulceration, and is separated in entire and sensible masses, the ulcer is said to be a *sloughing* ulcer. "When the process is slow, the lymph effused at the base and round the edge of the ulcer is hardened, and the granulations on its surface are deficient, the ulcer is then said to be *callous* or indolent: and when the granulations are larger and softer, and more flabby than usual, and require to be repressed before the ulcer will heal; to this variety of ulcer the name of *fungous* ulcer is given:" and the coarse and too luxuriant granulations are called, by the vulgar, *proud flesh*. These several terms, in the senses now assigned to them, you will please to remember.

It is by regulating the three processes now described—so far as they are capable of being regulated by art—that the surgeon and the physician endeavour to obviate the threatened ill consequences of ulceration, and to promote the repair of the textures which have been destroyed.

I explained to you, in a former lecture, that inflammation may lead to a wasting of parts, although there is no suppuration or ulceration. The testis sometimes withers as a consequence of inflammation: *interstitial* absorption takes place. *Atrophy* in short.

OBSERVATIONS
ON THE
EFFECTS OF DIVIDING THE TENDONS OF THE VARIOUS ORBITAL MUSCLES IN ANIMALS.

By E. W. Duffin, Esq., Surgeon.

[*For the Medical Gazette.*]

In order to aid me in deciding on the best mode of remedying certain untoward events that occasionally supervene after the performance of Dieffenbach's operation for the cure of strabismus, I undertook a series of experiments on animals for that purpose. The results of these inquiries, though not so satisfactory as might be desired, still present facts of considerable practical importance, worthy of careful consideration.

In conducting the experiments to be presently detailed, I may state that I was favoured, on different occasions, with the assistance and judgment of Drs. Marshall Hall and Child, and of Messrs. Samwell and Farquhar, surgeons, as well as with the opinions of various non-professional friends, who, being totally ignorant of the nature of the investigation, and consequently unprejudiced in favour of any cherished theory, or anticipated results, were the more likely to take an unbiassed view of the phenomena that they witnessed, than we ourselves, who, it may be presumed, could scarcely avoid entertaining preconceived notions.

Before detailing the facts that presented themselves to our notice, it may be premised that great difficulty was experienced in performing the experiments with sufficient accuracy and care to insure the complete division of what was required; and, at the same time, to confine the operations precisely within that limit.

All experiments of the operative kind on the orbital muscles of animals, in order to ascertain their respective functions, must, on several accounts, prove more or less unsatisfactory. The anatomical adaptation of the powers which move the eyeball in brutes, differs materially from that observed in the human species.

In animals there exist certain additional muscles and appendages to the eye, which modify the operations of the simple mechanism possessed by them in common with man. Thus animals are furnished with a muscle denied to man, the *suspensorius*, by which they are enabled to retract the eye in a most remarkable and powerful manner.

The principal object of this muscle seems to be to assist in retaining the eyeball *in situ*, and to obviate any inconvenience, or bad consequences, that might result from the long-continued dependent position of the head, during the time that the animal is feeding, which, in the *Ruminants*, engages so considerable a portion of the twenty-four hours.

In this class of animals, therefore, we find the suspensorius muscle not only powerful, but very large and funnel-shaped, so as to completely and uninterruptedly embrace the posterior half of the eyeball, and thus most effectually to accomplish this apparently important end. In *carnivorous* animals, whose time is not so much occupied in feeding, and whose heads, therefore, are not so constantly in a depending position, the suspensorius muscle is not so powerful or comprehensive. On the contrary, it is divided into distinct parts, forming, in fact, four independent fleshy slips, which have a common origin, but are inserted into the sclerotis by separate tendons reaching to the greatest transverse diameter of the eyeball, and passing between the attachments of the four principal recti muscles. The oblique muscles also, in ruminating and carnivorous animals, differ from each other in many respects. In the latter class, and in man, the *superior* oblique becomes tendinous immediately before it reaches the pulley affixed to the orbital angle of the frontal bone, and continues its tendinous form, from this point of reflection, to that of insertion into the sclerotic coat: whereas, in ruminants, the reflected portion of this muscle forms a second fleshy belly of considerable thickness and power, which again becomes tendinous before its final insertion. The part of the eyeball into which this muscle is inserted does not precisely correspond with the same portion in man; the insertion of the tendon being a little nearer to the cornea than in animals. The *inferior* oblique likewise, in animals, is a much stronger, more fleshy, and abrupt muscle, than it is in man, in whom its insertion is much more extensive, and effected by means of a stronger and more spreading tendon.

When any attempt is made to injure the eye of an animal, the suspensorius, or more properly the *retrahens* muscle, immediately draws the eye back into the orbit; and, in doing so, still further protects the organ, by causing the immediate and forcible advance of the membrana nictitans, which unfolds and spreads itself like a curtain over the fore part of the eye.

In experimenting on the internal rectus and oblique muscles in particular, this membrane is a source of great difficulty and embarrassment to the operator, as it not only comes constantly in the way of his instruments, but prevents the observer, after the desired end may have been accomplished, from ascertaining the precise direction in which the pupil is drawn, when the eyeball performs any rapid or involuntary movement, such as may result from slightly irritating the cornea with a feather, or the like.

In all the movements of the eye, indeed, that are not voluntary on the part of the animal, difficulty is experienced in making allowance for the influence of this suspensorius, as any portion of it appears to be capable of being called into play, to the exclusion of the rest of the muscle, especially in animals of the carnivorous tribe, in which, as just explained, it is divided into four distinct auxiliary recti muscles. Thus, if the adductor draw the pupil towards the nasal canthus of the orbit, and the inner portion of the suspensorius or retrahens cooperate with it, the effect is much heightened by the inner portion of the eyeball being at the same time drawn back towards the origin of this auxiliary muscle; and the same is the case when any of the other three recti are forced into involuntary action. Could a series of experiments be performed on any of the ape tribe, the orbital muscles of which class of animals resemble in every particular those of the human species, we might possibly arrive at better and more satisfactory conclusions. But even then we should have to contend with another difficulty, that equally opposes our inquiries when experimenting on a class of animals inferior to this, viz. the want of that intelligence which distinguishes reasoning beings.

We cannot, of course, when a muscle is divided in a brute creature, estimate the result in all its bearings, as in man, by requiring the animal to move in such directions as would aid our judgment, and satisfy us that specific results have been obtained, and certain objects accomplished. On the contrary, the only conclusions we can arrive at must be deduced from a comparison of the movements of the two eyes, when, by stratagem, we can excite the natural contractions of certain muscles in the organ that has not been the subject of operation. If, on inducing special movements in the sound eye, we find that those of the other organs do not correspond, we may fairly conclude, if they were previously complete, that the power of producing them has been destroyed.

Notwithstanding all these obstacles, however, a few plain and incontrovertible facts do present themselves, which are of sufficient practical utility to merit careful consideration.

The first experiments that I shall relate were instituted with a view to ascertain the results of dividing the several recti muscles. And, it may afford a tolerable criterion of the results we might expect to occur, were the corresponding tendons divided in the human species; provided the muscles were in a healthy condition, and the eye not in any way affected with strabismus.

Exp. I.—*Division of the Internal Rectus.*

The tendon of the adductor of the left eye of a middle-sized half-bred spaniel dog, was carefully separated from its attachment to the sclerotis. The pupil was instantly directed permanently towards the outer angle of the orbit; and to such an extent that, next day, fully one-third of the cornea was concealed from view. The animal appeared to be wholly incapable of disengaging the pupil from this situation; nor did he acquire the power of doing so in the slightest degree afterwards.

Exp. II.—*Division of the External Rectus of the same Eye.*[*]

In the course of a week from the performance of the operation, the *external* rectus of the same eye was divided, but without producing any sensible alteration in the position of the eyeball: the pupil still continued to be everted, and partially concealed in the temporal angle of the orbit.

From these facts we may conclude, either that the muscle had not formed a re-union with the sclerotic coat, or that, the eyeball having been so long unremittingly turned outwards, the re-union was established too far posterior to the original insertion to enable the muscle to invert the pupil again.

Exp. III.—*Division of the External Rectus Muscle alone.*

The abductor of the left eye of another dog, similar in size to the last, being carefully divided, the pupil was permanently turned inwards towards the nasal canthus of the orbit, *but not quite in so great a degree as, in the first experiment, it was turned outwards.* Nor did the animal, in this instance, apparently possess any power to dislodge it from its unnatural situation. This we ascertained, in both experiments, by holding its head in a particular position, and then calling the attention of the animal to the opposite direction. On such occasions the intact eye alone obeyed the summons of the will; the other did not move in unison with it.

From the three foregoing experiments, which were afterwards several times repeated, and farther verified in the course of operating on other animals, we may infer—

That, when all the orbital muscles are in a *sound* and *healthy* condition, if we divide either the adductor or abductor, the natural tendency of the antagonist muscle is to contract in the fullest degree of which it is capable; and that, in doing so, it will produce a deformity of the eye similar to that which characterizes ordinary internal or external strabismus;[*] with this difference, that the movements of the eyeball in the direction of the cut muscle will be wholly destroyed. When, however, we divide the adductor in the human eye, for the purpose of remedying strabismus, we very rarely find that the pupil is drawn outwards beyond the visual axis of the orbit. Hence we may conclude, that, under such circumstances, the eyeball is either prevented from turning outwards by some retaining adventitious cause, independent of the contracted adductor, which, after its section, no longer offers any opposition, or that the external rectus has been previously partially paralysed, as supposed by Mr. C. Guthrie (vide his Report). These facts, moreover, point out the propriety of not only satisfactorily ascertaining that the eye is affected with *confirmed* strabismus previous to operating, but, at the same time, warn us of the troublesome, if not unfortunate, consequences that may possibly result from immediately dividing the adductor tendon in the second eye, *when not in any way implicated*, as proposed and practised by Mr. Elliot, of Carlisle, should the section of the tendon of the faulty organ not prove *instantly* and *completely* successful.[†]

Another inference to be deduced from the foregoing fact is, that the oblique muscles take very little part in the lateral movements of the eyes.

When the internal rectus was divided, the obliques did not enable the animal to approximate the pupil at all to the nasal canthus of the orbit; neither did they, on the other hand, contribute the power of everting the pupil, when the external rectus was divided, unless in a very trifling degree; since it will be observed, by reference to the third experiment, that the pupil was not proportionally so much *inverted* when the external rectus was detached, as it was *everted* on the division of the internal muscle. This difference in the degree of displacement of the pupil may have been attributable to the combined action of the two obliques, if their actions be in any way calculated to aid that of the external rectus, as was supposed by Albinus, and is still maintained by Sir Charles Bell, Dr. Marshall Hall, and others. The power, therefore, that many patients possess of turning the pupils slightly inwards after the adductor muscle is divided, we may presume to be dependent much more on the acquired influence of the inner fibres of the superior and inferior recti, than on the action of the oblique muscles. Hence, also, another argument in proof of the doctrine, which I have already advanced, that division of either of these latter muscles can never be requisite in the cure of convergent strabismus.

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[*] This experiment, though performed a week afterwards, is detailed here, as being connected with the former one.

[*] If this result be the general law when the orbital muscles are divided, while in a healthy condition, then some of the arguments adduced, in a former article, to explain the reason why the pupil does not usually turn outwards after the operation for convergent strabismus, fall to the ground.

[†] Vide Lancet, Oct. 31, 1840.

But a practical question of much importance suggests itself for our consideration in reflecting on the foregoing facts, viz. When the pupil is very much everted on dividing the internal rectus—so much so, I mean, that we are satisfied time will not rectify the position the eye has assumed—ought we to wait, before cutting the tendon of the abductor, until re-union shall have taken place between that of its antagonist and the sclerotis, or ought we at once to perform this second operation?

When such an event takes place, *i. e.* when the pupil is everted in a remarkable degree, I apprehend that the case is one in which the strabismus had been primitively produced by *spasm* of the inner rectus; and that the external muscle, being in a healthy condition, was capable of its fullest degree of contraction. Were we to wait in such case, it is possible that the abductor might form a re-union too far back to be able to restore the pupil to the axis of the orbit, when the abductor tendon should be afterwards separated. If, on the other hand, we do not wait, we have seen that the eye will, in all probability, not be restored to its normal position, while both muscles are equally incapable of action, but that it will retain the position in which it is placed by the first operation. This *permanent* state of eversion, however, is a circumstance that, it would seem, does not occur in the human eye under the circumstances we are considering. However much the external rectus may contract after the abductor has been cut across, in a *strabismal* eye, the patient always possesses the power, when the eye is used *in conjunction with its fellow*, of bringing it to the central point between the inner and outer angle of the orbit, although at such moments the axes of the two eyes do not correspond, and vision is consequently double. If, however, a case were to present itself in which the pupil should be permanently turned outwards after the division of the abductor tendon, and the patient did not possess the power of removing it from this position, it occurs to me that we should gain nothing by waiting until the inner tendon was re-united, and that it would be better to divide the outer muscle at once. It is possible in such case, were the eye liberated, that the superior and inferior muscles might rectify the morbid position of the pupil. A case parallel to that just supposed, it will presently be shown, has actually occurred with regard to the superior rectus in the human eye.

From the foregoing experiments we should naturally expect that similar phenomena would attend the division of the superior and inferior recti; but such is not the case.

EXP. IV.—*Division of the Inferior Rectus.*

In this instance the tendon of the inferior rectus was separated with great care:[*] the animal lost completely all power of directing the pupil downwards, when that of the other eye was depressed; but it was not drawn upwards, as was expected, by the action of the superior rectus. Three days afterwards, however, it was found to be displaced in this direction, the upper third of the cornea being concealed under the superior palpebra, which situation it continued to occupy.

EXP. V.—*Division of the Superior Rectus.*

The superior rectus of the left eye of a middle-sized dog was separated from its insertion; the position of the pupil was not altered, although it appeared that the animal could not direct the eye upwards.

EXP. VI.—*Division of the Inferior, Internal, and Superior Recti.*

This experiment, as will be immediately shown, was performed for a special purpose.

The inferior rectus was first detached, then the abductor, and finally the superior muscle. The pupil at first preserved its natural central position, but in the course of two days afterwards was found to be directed outwards, and very slightly upwards.

My object in performing this experiment was to ascertain whether, when the internal rectus has been divided to remedy strabismus, and the pupil is drawn upwards under the superior palpebra in consequence of the deformity having arisen from *paralysis* of the *inferior* rectus, any benefit would be derived from dividing the superior muscle. From the result of the experiment, and the experience of two cases of this description which I have met with, it appears to me that the operation would be useful *after the abductor tendon has become re-united to the eyeball.*

EXP. VII.—*Division of all the Straight Muscles.*

In this experiment all the straight muscles were detached: the pupil remained fixed in the visual axis of the orbit. When irritated, the eyeball was retracted, and the membrana nictitans was suddenly spread over the fore part of the eye at the same moment, so that it was quite impossible to decide what influence the oblique muscles exerted, or whether they produced any special movement at all. It was clear, however, that they neither drew the eye towards the outer nor the inner angle of the orbit. Hence I am disposed to imagine, as already stated, that when both of these muscles contract together, they tend to steady the eyeball in the visual axis of the orbit, and contribute to modify the focus of the eye by compressing the sphere. They are, in such case, opponents, though in a slight degree, of the external rectus.

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[*] These dogs were in general afterwards killed, within an hour or two, and care was always taken to ascertain that the proposed object had been accomplished.

Exp. VIII. — *Division of the Superior Oblique and Internal Rectus Muscles.*

The greatest difficulty was experienced in performing this operation satisfactorily, in consequence of the retraction of the eyeball, and the protrusion of the membrana nictitans. A sharp-pointed bistoury was introduced at a right angle to the tendon, and about midway between the trochlea affixed to the frontal bone, and the insertion of the muscle into the sclerotis. The instrument was pushed sufficiently deep into the orbit to secure the cutting of the tendon on its being withdrawn with the point in contact with the roof of the orbit. There could, therefore, be no doubt that the tendon was divided. No apparent change occurred in the position of the pupil; nor could we perceive that the movements of the eyeball were in any way modified, or destroyed, by the operation.

The insertion of the internal rectus of the same eye was next separated from the sclerotis, and instantly the eyeball *protruded considerably*, and the pupil—dilated in a most extraordinary manner*—was drawn diagonally outwards and upwards, as if by the equal co-operation of the outer fibres of the superior rectus, and the upper fibres of the external, or abducens, muscle. The eyeball afterwards retained this position, and, when the muscles were sympathetically irritated to involuntary contraction, by gently touching the cornea, was always retracted by the action of the retrahens. On such occasions, the upper and outer portion of the sphere appeared to be the part most retracted; the lower and inner portion being at the same moment made to advance obliquely, and project in a remarkable manner.

Exp. IX.—*Division of the Internal Rectus and Superior Oblique Muscles.*

In the ninth experiment the foregoing operations were reversed on another dog: the section of the internal rectus was first performed, then that of the superior oblique muscle. The results were similar to those just related. The eyeball was directed outwards and upwards; its anterior inferior surface was brought into view, and considerable protrusion took place, accompanied with remarkable dilatation of the pupil. When the internal rectus alone was divided in this experiment, as in No. 1, the pupil was turned directly outwards; but, when the superior oblique was cut across, its direction was found to be outwards and upwards. This diagonal direction of the pupil, then, in the two last experiments, although such as might be presumed would be produced by the equal co-operation of the external and superior recti muscles, I am inclined to attribute, in a great measure, to the uncounteracted action of the inferior oblique, since it was exactly what might have been anticipated from the direction of the fibres of this muscle, and did not become *diagonal* until the section of the superior oblique had been performed. Be this as it may, the other result, viz. great projection of the lower portion of the eyeball, so that the anterior part of its under surface was brought into view on slightly depressing the lower eyelid, could be attributed to no other cause than the contraction of this muscle when unopposed by the trochlear.

Exp. X. and XI.—*Division of the Inferior Oblique and Internal Rectus Muscles.*

These experiments were conducted in a similar manner to the two last related, and the section of the former muscle, the inferior oblique, was accomplished on the same principle as had been that of the superior oblique; the bistoury being withdrawn with its point in contact with the floor of the orbit. The results which succeeded were very similar to those we had already witnessed. The eyeball protruded as soon as the adductor was cut across, but not before; neither did it project in so great a degree as in the former experiments. The pupil was directed outwards, but not upwards; and in this situation it remained immoveably fixed.

Most of the foregoing experiments I have repeated several times, and uniformly with the same results; the degree in which they manifest themselves, however, being various in different animals.

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* Slight temporary dilatation of the pupil often supervenes in the ordinary operation for strabismus, on dividing the internal rectus, especially in those cases in which the eyeball becomes somewhat more prominent immediately after the operation. But, when, in an animal, either of the oblique muscles is cut across, the enlargement of the muscles is very considerable. The iris contracts into a fine circular band, not above half a line or a line in breadth, and the eye presents an appearance very similar to that produced when the animal is poisoned with prussic acid. We should naturally imagine, as the pupil dilates when the eyeball is compressed, and contracts again when the pressure is withdrawn, that liberating the sphere, by cutting a portion of its attachments, would give rise to contraction; but the contrary is the invariable result. It may be presumed, then, that when the eye protrudes, the remaining recti muscles, being stretched, compress the sides of the globe.

On one occasion, when assisted by Mr. Samwell, on dividing the superior oblique, the pupil was drawn so forcibly towards the outer canthus by the action of the external and superior recti muscles, that, had it not apparently been for the restraining power exerted by the inferior rectus on the lower portion of the eyeball, it would have wholly disappeared.

What, then, are the functions of the superior oblique muscles? So far as may be inferred from the foregoing experiments, very little of a conclusive nature can be deduced.

It certainly appears somewhat paradoxical, and irreconcileable with a first view of the subject, that dividing one of two muscular powers, which both tend, though perhaps in different degrees, to bring the eyeball forwards in the orbit, should be a means of causing it to advance still more, even to protrusion; yet such would appear to be the fact. If we reflect on the course and insertions of these two muscles, we shall perceive that, when they act singly, it is probable they antagonize each other in the *semi-rotatory* movements of the eyeball; and that when they contract at the same time, they will co-operate in drawing the eyeball forwards in the orbit, but *without causing it to revolve in any direction*. On the contrary, they will steady it; and, as the origin of both of these muscles is from the nasal side of the orbit, they will fix the globe of the eye in the visual axis when we look steadfastly at an object placed immediately before us, and at the distance from the eye at which we can see it the most distinctly; *i. e.* at the true focus of the organ—this being the position in which the exertion of a steadying power is of the most importance, and that which is the most frequently exercised of any. If, moreover, the focus of the eye be ever changed, so as to suit it to the various distances at which we survey objects, these muscles, it appears to me, may be very powerful agents in accomplishing this purpose, by compressing the central portion of the sphere slightly between them, and against the cushion of fat which lines the nasal surface of the orbit; thus not only increasing the distance between the cornea and that portion of the retina on which the image is depicted, but also rendering the cornea itself more convex. The importance of steadying the eye, under particular circumstances, against any inadvertent contraction of the recti, and of accommodating its focus to view objects at various distances, is too obvious to need any comment; and I think we shall, on reflection, be inclined to admit that the same end could not be so efficiently attained by any combination of agency on the part of the recti muscles. When the trochlear muscle contracts, and the inferior oblique is relaxed, it appears to me that the effect will be to slightly rotate the eyeball downwards and inwards; and that when the lower muscle contracts, the upper one being at the same time relaxed, the effect will be to cause the eyeball to slightly revolve inwards, *i. e.* towards the nasal canthus, and upwards.

But we have seen that there was reason to believe that the inferior oblique aided the external rectus—a view that was taken of its actions by Albinus, and is still maintained by Sir Charles Bell, Dr. Marshall Hall, and others. Certainly, if we consider the direction of its fibres, and the extreme point of their expanded insertion, reaching nearly to the optic nerve, we can scarcely avoid arriving at this conclusion also—viz. that when left free to contract, as it especially is, if the tendon of its antagonist be divided, it will direct the pupil outwards and upwards, and thus assist the external rectus. But not so the superior oblique; at least certainly not in so great a degree. Its insertion, which is by a round tendon, does not usually extend more than two lines beyond the central diameter of the sphere*; neither does it, in so great a degree, transversely embrace its circumference. To me it appears probable that this muscle, *when both obliques are entire*, can only assist the *internal* rectus, while the inferior one may aid the *external* muscle in certain compound movements of the eye, the nature of which we at present know little or nothing about.

But there is a practical inference to be deduced from the foregoing facts, of considerable importance.

If the eyeball be protruded in the manner we have seen it may be, when either of th oblique muscles is divided in animals furnished with a suspensorius or retractin muscle, how much more might we fear it would be so, were the same operation practised on man, to whom this muscle is denied.

Presuming this extension of the operation to have been attempted with impunity, it appears to me unnecessary to offer any comment on the propriety of farther inquiry before it be repeated.

14, Langham Place, Regent-st.
Nov. 19, 1840.

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* In most works on anatomy we are informed that the insertion of the trochlearis does not extend beyond the great diameter of the eye. But this, it would appear, is not correct. I have of late dissected a number of eyes for the purpose of ascertaining this fact, and have, in every instance, found the insertion to be posterior to the greatest diameter of the eyeball. In a preparation now in my possession, the ultimate fibres of the tendon were inserted more than three-eighths of an inch posterior to the central diameter of the sphere.

SITUATION OF THE PLACENTA.

To the Editor of the Medical Gazette.

SIR,

AN attempt having been made in the number of your periodical for the 3d instant to impugn a statistical table, indicating the situation of the placenta in 100 cases, published by me in the Dublin Journal of Medical Science for March last, I trust you will permit me to offer a few observations in support of the data on which that table was constructed. And firstly, I would briefly allude to the circumstances to which it owes its origin.

Mr. Hugh Carmichael, of this city, having laid before the profession, in the Dublin Journal for January, 1839, certain novel views with respect to the mode of growth and contractions of the womb, which appeared to me as interesting as they were new, I determined in every way in my power to test their correctness. For this purpose I attentively examined the arguments upon which his theory was founded, and endeavoured, by the observation of cases, which I considered bore upon the question, to come to a just conclusion. The result of my inquiry was, that I collected several cases completely opposed to his doctrine, and in the same periodical I advanced them as incompatible therewith. To the cases thus brought forward Mr. Carmichael afterwards took exceptions, in consequence of which I again applied myself to the subject, and extended my observations to a hundred others, which I found still to bear so strongly against the positions he laid down, that I again inserted in the Dublin Journal the fruits of my investigation. The conclusions arrived at that gentleman has now, in your publication, endeavoured to overturn. I shall therefore, with your permission, enter once more, with as much brevity as possible, into the question at issue.

The theory Mr. Carmichael has advanced is, that the growth of the uterus during gestation, instead of taking place, as now believed, by a general enlargement in all directions, is confined to one part alone, its anterior segment; which, increasing in altitude, occupies and passes over the fundus layer after layer, until the expansion has arrived at its maximum. At that time he considers that all that portion of the back of the womb above the Fallopian tubes, the entire fundus, and the anterior wall, have been supplied from the increase of the latter part alone, and that the posterior wall below the tubes has undergone little alteration from its condition in the unimpregnated state.

The arguments upon which he founded this opinion were threefold. Firstly, he maintained that the growth of the fundus is too great to permit the placenta, if it continued in the upper region of the uterus, to keep pace with it in development; in confirmation of which position he referred to several instances where he considered hæmorrhage owed its origin to the fact alone of the placenta being situated, at the time of labour, too high on the posterior wall. He does not appear ever to have met with a case in which it held an anterior position, nor one in which it adhered to the fundus; but of the latter he expressed his conviction, that so incompatible was it with his views, such an arrangement could not but give rise to separation of the placental and uterine surfaces, and its consequences. Secondly, he stated that in examining many cases, he always found, in natural ones, the placenta to have adhered low down on the posterior wall at the termination of gestation, although it is an admitted fact the ovum forms its first attachment to the fundus, or very close to it. And thirdly, he considered that the change which the Fallopian tubes undergo during the enlargement of the uterus, being at the full time not only much removed from the fundus, but also, having then a posterior aspect, demonstrated the whole growth of the organ to have been anteriorly.

Upon this basis he rested his doctrine that the anterior wall expanded in the way I have mentioned; the contractions he considered to take place exactly in a reverse direction, and be confined to the anterior wall until after the expulsion of the child, at which time he believed them to extend to the lower part of the posterior wall also, and so to detach the placenta. By this means he is of opinion nature has provided for the security of the latter important organ, placing it out of the reach of alterations in the capacity of the womb, until it becomes itself useless, and protecting it against the consequences which must have ensued, were it exposed to the vicissitudes attending them.

Against these positions I argued as follows:—If it be a fact, that the growth of the fundus is so great that the placenta could not maintain with it an equality of development, hemorrhage must, in every instance, result, when the afterbirth is found at the period of labour either wholly or in part within the upper segment of the organ; and if this be the case with the fundus, it must be much more so with the anterior wall, supposing its expansion to take place so extensively as described. It appeared to me, therefore, that if I instanced cases which exemplified the placenta, first high up on the posterior wall, secondly attached to the fundus, and thirdly attached anteriorly,—cases in which no untoward occurrence happened to either mother or child,—I would hence demonstrate his theory to be built on an unstable foundation. This I accordingly did. At the same time, I pointed out the circumstances which, in my mind, influenced the seat of the placenta. I observed that the height at which the ovum attaches itself, must depend, in a great degree, on the decidua reflexa; if that membrane be rapid in its growth, or easily prolonged, the ovum of course arrives at a lower part of the uterus before it forms its union with the maternal structures, than where the reflexa is of opposite qualities — a fact which is proved by the inspection of abortions, the cord obviously springing in different specimens at a higher or lower elevation. The evidence thus obtainable, too, is quite at variance with Mr. Carmichael's statement, that the ovum invariably forms its first adhesion on the fundus, or close to it. I also noticed the possibility that the wall on which the placenta forms, depends, firstly, on the position of the uterus at the time, and secondly, on the quantity of the fluid its cavity then contains. In the usual condition of the parts, the uterus placed obliquely, the fundus leaning forward, the hydroperione must float the ovum, contained in the reflexa in contact with the upper portion of the posterior wall; and accordingly there the ovum in a large proportion of instances attaches itself. But if the quantity of decidual fluid be not sufficient to support the reflexa in the manner described, its gravity carries it towards the anterior wall, and there the placenta is formed. It is probable also, that if the uterus presents a less degree of obliquity, or leans to one or either side, the reflexa will be elevated by the hydroperione to that which is uppermost, and there the union will be accomplished.

These observations may or may not be true, but at all events I think I have shewn, in the paper I allude to, that on whatever part the placenta forms, there it remains and grows, and there it will in all stages of gestation be found; and any slight deviations are sufficiently explained by the inequality of its own development, which the frequent deviation of the cord from the central point demonstrates a not unusual occurrence. With respect to the Fallopian tubes, I quoted a passage from Dewees, which, I repeat, will be found at page 88 of his treatise, in which he stated that the enlargement of the uterus is confined almost entirely to the *posterior* segment, and that at the termination of pregnancy the tubes are situated *anteriorly*. This passage Mr. Carmichael declares he has not been able to find; the fact he denies. But if he will only pass a line around the gravid uterus at the full time, where the tubes penetrate its substance, he will find three-fifths situated posteriorly to them, and two-fifths anteriorly. This observation I had from Dr. Montgomery, whose accuracy on such a subject no man will question; its correctness I have verified by reference to casts and preparations in his museum.

To the cases I have brought forward the author replied, that as in all of them some circumstance arose to call for interference, not one could be considered natural, and, consequently, no argument could be founded on them. I certainly admit there is some force in the observation, that where considerable bony deformity exists, the placenta may have assumed an unusual position, but I conceive its situation could not possibly be influenced by a deposition of osseous or other matter upon it sufficient to cause morbid adhesion. This is a process which takes place *after* its formation, often in the very last days of pregnancy, and could not surely cause it to shift its adhesions. His argument, too, that no deduction should be drawn from the evidence afforded by the introduction of the hand after the expulsion of the child, because the process of contraction he has described would then produce a change in the situation of the mass, appears to me to be begging the question; it is assuming that which has not been proved, viz. the action of the anterior wall independent of the posterior. For these reasons, I felt, and still feel, that all my original cases, except those where deformity existed, were proper materials in deciding the question at issue. But as they had not satisfied the author, I determined to follow, as closely as possible, the mode he pointed out for ascertaining the seat of the placenta.

This method consists of two parts; firstly, the application of the stethoscope, and secondly, the inspection of the secundines after they were expelled. With respect to the former, the author stated, in contradiction of every writer on the subject, that the bruit being always heard in one or other iliac fossa alone, testified that the placenta was always attached where he represented. The evidence to be deduced from the secundines he gives in the following terms:—

"The child before birth is enveloped in a double cyst of membranes, proper to itself, independent of one formed by the womb at conception. These membranes, though unattached to the uterus, are firmly united to the placenta and cord, and do not come away in labour except with the latter. It is obvious, then, that in order to birth, the child must perforate the cyst, and thus form an aperture therein: now, if care be taken in the delivery of these parts, that the membranes shall be preserved unbroken except at the place through which the child escapes, the information we require may be obtained with the utmost correctness: for example, if the borders of the aperture be equidistant from the placenta in all directions, then this latter must have been exactly opposite, and consequently at the fundus, for the aperture is obviously at its mouth; but if, on the contrary, the distance be considerable in one direction, while it is but very little removed from the placenta in the other, then it is evident that the fundus was not the position it occupied, but somewhere not far from the mouth of the womb; in fact, by inflating the membranes so preserved, we have an exact representation of how they and the placenta were situated in utero."—*Dub. Journ.* for Jan. 1839, p. 462.

This is all very good so far as it goes, but it is by no means a modern observation, the same having been known to Smellie, who makes use of it as Mr. Carmichael has done, nearly a century after, to combat an opinion then entertained, but since well known to be erroneous, that the placenta is usually attached to the fundus. "When the placenta is delivered," says Smellie, in the 3d chapter and 9th section of his Treatise, "and no other part of the membranes torn except that through which the child passed, the opening is generally near the edge or side of the placenta, and seldom in the middle of the membranes; and a hog's bladder being introduced at this opening, and inflated when lying in water, will shew the shape and size of the inner surface of the womb, and plainly discover the part to which the placenta adhered."

Now it must be evident, that, though in either of these ways it can be made apparent whether or not the placenta adhered to the fundus, it cannot be distinguished on which wall it had been implanted. This did not escape Mr. Carmichael, who thus continues:—"By introducing the hand into the opening, we get into a pouch formed by the membranes, the superior part of which evidently corresponded with the fundus; and then, by running the finger along their inside, opposite to where they are attached to the placenta, we are at once enabled to perceive, by their peculiar appearance there, that at that part they lined the anterior distended and convex portion of the womb, and thus, consequently, fix the back part of it to be the place where the placenta was attached."

Such are the directions Mr. Carmichael gives for ascertaining this point; but I am sure such a mode will not satisfy any mind but his own. Will it suffice to introduce the hand, and, running the finger along the membrane, thus guess at which was a concave and which a convex portion? In so flexible a material, I ask, cannot any portion be made by pressure to appear more or less prominent? And is not such a mode of investigation most futile and deceptive? It is founded, too, on the supposition that the anterior part of the uterus is much more rounded, even at its inner surface, than the posterior—a fact which Dewees denies, and which the actual position of the Fallopian tubes on the anterior aspect tends to disprove. If there be any difference in this respect, it can never be so great as would be indicated in the way mentioned.

Convinced, then, that this method was uncertain, and yet feeling satisfied the secundines could afford the evidence required, I turned my thoughts to the subject; and, on reflection, it appeared to me evident we had only to observe the way in which their separation and expulsion are accomplished, to acquire the information we stood in need of. This process I thus described in the Dublin Journal for March last, p. 20:—

"The evidence afforded by the secundines is founded on the fact of the placenta, in the majority of instances, being expelled with the membranes reversed, and its fœtal surface downwards. When this is the case, it is obvious the upper edge must in its separation have been momentarily earlier than the lower, and thrown towards the wall opposite that on which the mass was implanted—a direction the membranes, which usually remain longer adherent, tend still further to give it. But as the membranes arising from the upper edge pass over the fundus and down the opposite wall to the os tincæ, they must be much longer than at the inferior edge, and the length of the latter will shew how far from the os the placenta was actually situated. As this, however, will not be sufficient to tell us to what wall it was appended, I adopt the expedient of inserting a pin, as it lies on the bed fully expelled, into the margin close to the patient's thigh. Thus I am able to distinguish the anterior from the posterior part when removed for examination. Recollecting now that the upper edge is thrown (falls would better express my meaning) towards the opposite wall, it must be evident, if the long membrane be found at the pubal margin, the placenta must have been on the posterior wall; if at the perineal, on the anterior. The same will hold good with respect to the lateral parietes. But frequently the membranes being early detached, come down in their natural relation, unreversed, or only one-half inverted; still I have satisfied myself the separation of the placenta, in by far the greatest proportion of cases, takes place from above downwards, which indeed is proved by the fact that the fœtal surface is still the first to make its appearance. In a very few the uterine surface is first seen, and then it follows, the secundines will tell an exactly opposite tale to what they ought. For instance, if the placenta be on the posterior wall, and the lower edge is first or simultaneously detached, it may be directed by the perineum towards the pubis, and the short membrane will then be there found when it is expelled. This error, however, can easily be guarded against, by watching which surface descends foremost, or, in other words, which remains directed towards the vulva; indeed, it is principally, I might almost say only, when it has been on the posterior wall, and, consequently, had the perineum to slide along, I have observed it so detruded."

To these observations Mr. Carmichael has made, in the MEDICAL GAZETTE, the following objections:—"Although the earlier detachment of the superior portion of the placenta is stated in the critique as quite obvious, I by no means assent to the postulate. I have laid grounds in my paper for supposing that uterine contraction is very much conducted on the anterior wall of the womb until the child is expelled; and if that be the case, I cannot see how such a mode of detachment is so obvious;" (I think we could not find a better specimen of that mode of arguing commonly called "begging the question," than this passage; however, the author continues,) "on the contrary, I should think the entire of the placenta-uterine surface would be acted on at once; indeed, I think this must be so, no matter how the contractions be; in which opinion I am strengthened by the well-known fatal consequences resulting from partial detachment. But admitting the superior portion to be first detached, by what means is it alone thrown to the opposite wall of the womb? Again, supposing all these granted, I contend the capacity of the womb is by no means such as to admit the advance of the superior section of the placenta to take place to such a degree as to permit the mass to assume the position necessary to sustain this argument."

Now in the foregoing remarks I

think I need scarcely say I have been throughout his whole work entirely misunderstood. I by no means intended to convey, that the superior portion of the placenta is detached any considerable time before the superior; my words were, "momentarily earlier;" and I believe that the contractions of the uterus, occurring from above downwards, must have that effect; nor did I imagine the placenta, in its transit through the uterus, assumed "an antero-posterior or horizontal position," and, as if it were made of tin (but even that would bend under uterine action), required a space equal to its breadth, when spread out, to permit it to pass. On such a supposition it was very easy to talk of hæmorrhage, which should occur; but, unfortunately for the applicability of such observations, my description of the birth of the secundines supposes it to be produced by active uterine contraction.

To make that description plainer, I shall offer the following additional explanation: — It is universally admitted, in the great majority of instances, the placenta is expelled with its fœtal surface downwards, the membranes being reversed, and following in its train. That being the case, we shall suppose the placenta to adhere to the posterior wall of the uterus, and the child to have passed through an opening made in the transparent membranes at the part corresponding to the os tincæ. It must be evident that, situated as the placenta is at present, it has dependent from its inferior margin a portion of membrane, which is but short, as it merely passes downward as far as the mouth of the womb; while from its superior border the membrane proceeds upwards, and lining the fundus, descends along the anterior wall to the corresponding lip of the os; and that the latter must, therefore, be much longer than the former. When uterine action recurs, the placenta is detached, I believe, from above downwards, but we shall say simultaneously throughout its whole extent; but the membranes are not separated at the same time. The weight of the placenta, then, increased by blood extravasated on its uterine surface, causes it to sink towards the os, but of course folded up by the uterine compression; and it must be apparent, when we recollect that its fœtal surface comes foremost, that in doing so its upper margin sweeps along the anterior wall of the uterus: in no other way can it come down with its fœtal surface presenting. The placenta being now situated in the upper strait of the pelvis, if the finger be introduced it will reach the insertion of the cord: the short membrane has probably separated itself entirely from the womb, and of course maintains a posterior position, but the long membrane forms a double upon itself, as can be ascertained by passing the hand, and the external layer of that double still retains its adhesions to the anterior wall, while the internal layer (that which covered the posterior wall above the placenta and the fundus) is free on its surfaces, but continuous above with the external layer, and below with that part of the afterbirth, which was its superior edge, but is now the anterior. When the process goes still further, and the placenta advances to the vulva, first is seen the root of the cord spreading its large vessels over the fœtal surface; then out comes the whole mass, the posterior edge hurrying with it the short membrane, the anterior at its exit evidently peeling off the last adhesions of the long membrane. Sometimes the latter are not thus overcome, and then the finger, passed along the pubis, detects the membrane not yet detached from the anterior part and sides of the uterine neck, and by proper manipulation separates it. The reverse of all this will hold good when the placenta occupies the anterior wall, the superior edge, with its long membrane, passing in its exit along the posterior wall of the uterus and vagina, and ultimately escaping at the perineal extremity of the genital fissure.

It must be evident from this description, which any one who has paid attention to the subject will at once recognize as correct, that the short membrane, wherever situated, will indicate the edge of the placenta which had been the inferior, and that no further room is necessary for the passage of the mass in the way stated, than that which, folded upon itself, as we see it protruding through the external parts, it requires for its transmission; and I consider that I was perfectly correct in asserting that in the multitude of cases in which the fœtal surface comes foremost, if the long membrane be at the perineal margin, the placenta must have been on the anterior wall; if at the pubic resting on the posterior. This is the common-sense view of the question; and I have satisfied myself of its correctness by repeated observation. Moreover, I think the onus rests on him who denies it, to prove that the placenta can so turn itself round in the uterus as will enable the inferior edge to assume a superior position, which alone would vitiate the evidence thus afforded. It would have been easy to illustrate my description by a diagram, but I fear its introduction would not be compatible with your arrangements.

Having thus obtained a means of recognizing the former situation of the placenta, I determined to institute a series of observations, firstly, to ascertain how far the evidence to be derived from the membranes would tally with the stethoscopic examination; and secondly, how far the deductions to be drawn from both, and from the introduction of the hand in such cases as required it, would support Mr. Carmichael in assigning, as the seat of the placenta in ninety-eight cases out of a hundred, the lowest part of the back of the womb; that is to say, "within two inches of the lowest part of the cyst." The table published in the Dublin Journal was the result. It shows, that in every case the situation, as indicated by the stethoscope, and which every authority on the subject declares is that which the introduction of the hand will point out to be its real situation (as indeed I always found it), was confirmed by the inspection of the afterbirth, in the way I have mentioned. With respect to the stethoscopic examination, I may be permitted to observe, as my accuracy has been called in question, that having now for nearly three years devoted much of my time and attention to the cultivation of the instrument, in the magnificent field afforded by the Dublin Lying-in Hospital, it can scarcely be supposed I would commit any great blunder in its use. By the foregoing means I found that out of 100 cases, in 25 the placenta was attached to the anterior wall; in 10, to the left side, extending to the anterior wall; in 8, to the right side, also extending to the anterior wall; in 54 it occupied the posterior segment of the uterus, either in a central position, or approximating, as it usually did, to one or other sides; and that of these posterior placentas, only 27 came "within two inches of the lowest part of the cyst." I am proud to perceive that a favourable judgment has been expressed of my researches in this particular by the Editor of the British and Foreign Review, of whose midwifery articles the profession entertains so high an opinion.

An attempt has been made to array against me the observations on this subject of Mr. H. F. Naegelé, because in 600 cases he discovered the placenta to have occupied the anterior wall in 13 only; but I consider of the two mine is the correct proportion, for the following reasons:—In assigning this as not an unusual situation, I am supported by Velpeau, who, out of 34 cases which he examined after death, found three placed anteriorly, (which would thus give in 600 cases a proportion, not of 13 only, but of 53; and by the standard authorities in midwifery, all of whom attest that the placenta may attach itself to any part of the uterus. Denman even states that it *most frequently* adheres to the anterior part. M. Naegelé, too, it must be remarked, drew his opinion of the situation of the placenta (except in two instances where he had a post-mortem examination) from the stethoscope alone; for, although he mentions in a note, that the membranes can give some evidence on this point, he does not appear to have availed himself of them. Now, that author sets down, as undeniable by the stethoscope, the large number of 180 out of 600 cases; and on turning to the passage where he explains why these cases were indeterminable, there is the following remark:—

"Although the point of insertion of the placenta may be generally ascertained with tolerable accuracy by means of the stethoscope, yet there are two classes of cases in which it affords no information on the subject. To the one belong those rare cases where no uterine sound is distinguishable; to the other, those much more frequent instances, in which the sound extends with equal intensity from both inguinal regions over the whole uterus."—*West's Translation*, p. 78.

In these cases, however, inspection of the secundines has enabled me to state, that in the former class the placenta is small, and occupies about the centre of the posterior wall, and in the other it is attached to the anterior; and on this point I am borne out by a high authority, whom M. Naegelé does not appear even to have heard of, at least no allusion to him. "As to the fact of its being heard over the whole uterus," says Kennedy, in combating the views Dr. Häus had advanced, and which, strange to say, Dr. Hope still adheres to, namely, that the souffle is not in the uterine arteries, but in the aorta and iliacs: "as to the fact of its being heard over the whole uterus, if this gentleman had sufficiently inquired into the matter, he would have found that it is rarely, if ever, perceptible over the whole of that organ, although it is often met with over a greater or less extent of its anterior wall; and in such cases he might have detected the placenta attached there; also, where the sound could not be detected, he might have found it attached posteriorly."—*Observations on Obstetric Auscultation*, p. 72.

With such evidence in my favour, I think I may fairly say that a large proportion of M. Naegele's undeterminable cases should have been added to the anterior, and thus my table and his would have corresponded very nearly in that particular. But I care not, for the purpose of rejecting Mr. Carmichael's arguments, what proportion the anterior position bears to the others; let him only grant me one case, as he has done in appealing to M. Naegelé, and I say his theory is untenable; for, in the first place, it is impossible, with his mode of expansion, that the placenta could ever adhere to that particular part; it must in every instance be turned over to the back of the uterus; and, secondly, according to him, such a case, if it could occur, should be attended with hæmorrhage, as must also those in which the mass adhered to the fundus. "Were the placenta here attached," he remarks in your periodical, "it is evident that the growth of the two organs would not correspond; that of the womb would exceed that of the placenta, and disturbance of the function of the latter would be inevitable, with its consequences on the mother and child." He expresses his intention, too, of making some remarks in a future number on abortion resulting from this cause. No doubt a very learned article may be written on this subject; but, before it can carry any weight, he must first prove, beyond question, that such is the mode of growth and contraction of the uterus, which assuredly has not yet been done. He must, too, have altered his ideas very much with respect to hæmorrhage; for when I first made use of the argument, that according to his theory hæmorrhage should result in every case in which the placenta adhered to the anterior wall, he was quite offended that I should imagine he could suppose such a thing to occur as hæmorrhage, whilst the child remained in utero.

"And as for looking for hæmorrhage from detachment, partial or otherwise, while the child is in the womb," he remarks, "this I can only say, I never even hinted at it, nor can I see how it could possibly occur; and is it not a sad hardship on my part," he asks, "to have such silliness attributed to me?"—*Dub. Journ.* for Nov. 1839, page 223. One would be almost inclined to think, from this passage, he denied the possibility of the occurrence of accidental hæmorrhage; as an exemplification, however, of placental detachment by uterine action, I shall quote the following interesting case reported in M. Gendrin's Philosophical Treatise on Medicine —

"A woman, thirty-six years of age, the mother of many children, and in her eighth month of pregnancy, had a violent cough and fever. Being seized with labour, she sent for a midwife, who, after twelve hours of travail, saw her patient fall into the most alarming state. M. Delaforterie was sent for, but arrived only after her death. He instantly performed the Cæsarean section with every requisite precaution; and, on opening the fundus uteri, witnessed the escape of a gush of blood, which he estimated at three 'chopines' at least. This fluid left a large pouch between the placenta and the uterus, into which M. Delaforterie, on introducing his hand, was satisfied that the placenta had preserved its natural marginal adhesions with the womb."—*British and Foreign Rev.* for July last, p. 86.

Here now was a case which Mr. Carmichael, did he admit the possibility of such a kind of hæmorrhage, might fairly have adduced as a specimen of the bad results which follow the adhe-

-sion of the placenta to the fundus; but unfortunately Naegelé has given seven, and I have given three cases, where the placenta occupied a fundal position, and yet no such consequence ensued. But in truth, in referring to M. Naegelé's table, Mr. Carmichael has been most unfortunate as regards his own theory and statement. If a slight discrepancy existed between the German author and me, a still greater difference can be pointed out between Mr. Carmichael and the umpire he has chosen. The former with confidence asserts, that at the termination of gestation, in 98 out of 100 cases, the placenta is situated low down on the posterior wall; according to the latter, it adhered in 379 instances out of 600 to the sides of the womb. It is not for me to say which opinion is likely to be correct; but, assuming that the lateral is the usual position, in what a predicament must M. Naegelé's placentas have found themselves. Attached to the sides of the uterus, and thus extending into both its posterior and anterior segments, one-half must have been securely lodged in a never-changing residence, whilst the other half underwent all the dangers of the ever-shifting scene—throughout pregnancy, running the risk of being outgrown, and during labour subjected to the imminent hazard of being detached by uterine action. How strange that, amidst such dangers, the population of Ireland should not have been materially thinned!

But I insist that, according to the mode of growth described, the placenta should in every case be found, not anteriorly, nor even laterally, but occupying the posterior wall alone. If it be first attached to the fundus, and if its position be altered by the increase of the anterior wall, it should be in every instance (to use the author's own words) "turned over to the back of the womb;" and every single case in which it is otherwise situated militates against the doctrine advanced, particularly those in which it assumes and maintains throughout gestation an anterior position. As Mr. Carmichael never witnessed a case of this sort uncombined with some unnatural circumstance, I shall mention one, besides those I have already referred to in my papers, which it is in his power to examine for himself. A few weeks since I removed the uterus from the body of a young woman, who died after a few hours' illness, in about the seventh month of pregnancy. The preparation I this day examined with Dr. Wm. O'B. Adams, the Professor of Midwifery to the Apothecaries' Hall, in whose museum it now is. We found the placenta still adhering to the centre of the anterior wall, to which the bladder (a sufficiently distinctive mark) is still appended. Why, I would ask, was not this placenta carried up, if this extraordinary and novel extension of the wall, on which it was implanted, was going on? Before this period one would imagine it should have advanced at least as far in its revolution—which, by the way, the author on another occasion humorously likened to that of a planet in its orbit—as far, I say, at least as the fundus, as it had only two or three months more to make its way downwards to its allotted position. But perhaps this will be considered a solitary instance, one in which the law of growth was reversed in its favour. Be it so; but I should like to know how it comes to pass that, in a very great majority of cases of partial placenta presentation, the placenta undeniably remains, up to the period of labour, attached to the very lowest part of the anterior wall? To my plain mind these indisputable facts are quite at variance with the theory proposed; but I have no doubt Mr. Carmichael can find some ingenious mode of reconciling them, for some men there are who will never own their mistake, and

"Though vanquished often will argue still."

But as with even such a doughty combatant the contest cannot last for ever, I shall say, in order to conclude on my part this long-continued discussion, which has now been extended into three periodicals, that feeling satisfied the mass of evidence I have brought forward, and the arguments I have used, are sufficient to convince any person who takes an interest in the matter, I shall not again enter into the question, unless some new fact of sufficient importance is adduced in support of this theory, which undoubtedly is as yet unproved, and, in my opinion, unprovable.—I am, sir,

Your obedient servant,
Richard Doherty, M.D.

Dublin, 14th Oct. 1840.

REPORTS OF CASES,

By H. M. Hughes, M.D.
Assistant Physician to Guy's Hospital, and Physician to the Surrey Dispensary.

[*For the Medical Gazette.*]

Pleuritis.—There are a few rare affections both of the chest and abdomen, which, I believe, cannot either by their history, their general symptoms, or their local signs, be *always* distinguished with certainty from the effusions consequent upon inflammation of the pleura. Among such affections may be mentioned malignant disease of the lung, fungoid tumors, and other irregular growths of the liver, displacing the diaphragm, and encroaching upon the cavity of the thorax, which occasionally present all the constitutional as well as local characters of empyema. Ægophony, supposed by Laennec and his immediate followers to be almost pathognomonic of a certain amount of pleuritic effusion, has been stated by several recent writers upon diseases of the chest to occur very unfrequently in a perfect or characteristic form. In this opinion I entirely concur, as, after many years especial attention to thoracic disease, during which I have examined very numerous cases of pleuritis, I have very rarely had an opportunity of hearing well-marked ægophony; though modifications of the sound, as that accurately resembling the voice of Punch, and of a person speaking through a trumpet, or that which may be correctly denominated ægophonic bronchophony, are exceedingly common.

The symptoms of pleuritis, notwithstanding, are ordinarily sufficiently characteristic, and the accession, advance, and retrocession of the complaint, are generally most accurately marked by the signs afforded by percussion and auscultation. Some instances of the disease I have indeed myself witnessed, the nature of which could not, I feel assured, be accurately determined, without these important aids to diagnosis; unless a sharp pain in the side had been considered sufficiently indicative of an inflamed pleura. Pleuritis, it is true, is usually, though not universally, accompanied with pain, and the physician whose opinion as to the existence of this complaint was founded upon this symptom alone, though he would be frequently mistaken in his diagnosis, would include the great majority of the cases submitted to his notice. But, independently of the few instances of latent pleurisy, of which he would take no cognizance, he would include diseases of an entirely different nature, and would probably treat, antiphlogistically, complaints, as rheumatic affections of the pectoral or intercostal muscles, and neuralgic pains, resulting from spinal or uterine irritation, which required for their relief or removal measures of an entirely different or even of an opposite kind. At the onset of some cases of pleuritis, pain is the only general symptom present, and it is by the physical signs alone that the physician is enabled to decide upon the inflammatory character of the complaint; upon them alone must his treatment at that important period be founded, and upon a correct appreciation of these alone, therefore, is often dependent the speedily successful termination of the disease.

It is not my intention to enter upon the symptoms and diagnosis of pleurisy, accounts of which may be found in all recent systematic works. I shall therefore merely state, that the five cases of simple pleuritis mentioned in the table were accompanied with the ordinary symptoms, that they all terminated successfully under the ordinary treatment by bleeding, cupping, blisters, and calomel and opium, and that they presented no features of especial interest which render them worthy any particular notice. A case, however, which I have lately seen, so entirely confirms the truth of the observations I have made in reference to the importance of the signs afforded by auscultation and percussion, that I may be excused for detailing it in this place.

S. S., aged about 36, a pale thin woman, much marked with the small-pox, and of light complexion, came under my care as a patient of the Surrey Dispensary, May 19, 1840. She was of temperate habits, the mother of six children, and principally engaged in domestic household work. Ten days before I saw her, while in good health, she was affected with catarrh, and six days after was attacked with pain of the side. When visited, she was lying on her back, inclined towards the affected side, from which position she was with difficulty persuaded to move for the purpose of examination. The pain was represented to be so very acute, and such exquisite tenderness existed upon slight pressure, or upon any movement of the trunk in a particular direction, as to lead to the supposition that it was of neuralgic or rheumatic origin. Her general appearance and symptoms tended rather to confirm the probability of the former. Her face was pallid; her lips deficient in colour; her tongue clean, pale, and moist; her skin soft and perspiring; her pulse small, frequent, and feeble; and her bowels confined. The resonance of the chest on percussion was generally natural, but very obvious dulness existed at the seat of pain in the left lateral region, and below the left scapula; the respiratory murmur, puerile at other parts, was in those specified entirely absent, and its place supplied by tubular respiration; and the voice, of the ordinary character and intensity over all the right, and the greater portion of the left side, was in the regions affected loud, shrill, and vibrating (imperfect ægophony). She was ordered—

> V.S. ad prima signa deliquii. Pulv. Rhei. c. Hydr. Chlorid. gr. xv.; st. sumend. Hydrarg. Chlorid. gr. j.; Ant. Potassio. Tartrat. gr. ¼; Opii, gr. ss. 4tis horis.

On the next day, as I was engaged, she was seen by the apothecary of the institution, who ordered a repetition of the venesection, and the other medicines to be continued.

21st.—The general symptoms now presented quite a different character, though the local signs were unchanged, and the pain, though decreased, was still severe. She complained much of thirst; the tongue was dry and coated; the skin hot and dry; the pulse firm and bounding; and the bowels again confined after the free action of the powder.

> Rep. Pulv. Aperient; Cont. Pil. Capt. haustus effervescent. 6tis horis, et applicetr. Empl. Cantharid. lateri dolent.

22nd.—The medicine had produced constant relaxation of the bowels, and she had passed several green motions; the skin was cool and moist; the tongue coated with a yellowish-white and moist fur; the pulse 96, small and compressible; the dulness on percussion and loud shrillness of the voice had decreased, and a little crepitation was heard, apparently proceeding from a thin and superficial layer of the lung, immediately below the affected pleura.

> Intermitt. Mist. Rep. Pil. Capt. Mist. Cretæ. ℥iss.; post sing. sedes liquid.

23d.—Diarrhœa had ceased; she had but little pain; the physical signs of the complaint were less marked; but dulness still existed below the left scapula, and there were some indications of approaching salivation.

> Rep. Pil. nocte maneque. Applicat. Empl. Cantharid. scapulæ sinistr. ℞. Liq. Am. Acet. ʒss.; Mist. Camph. ℥j.; Vin. Antim. ʒss. M. ft. haust 6tis horis sumend.

25th.—Salivation profuse; had no pain; skin soft and perspiring; pulse 104, soft and compressible; respiratory murmur returning in the affected part; dulness on percussion much less, and resonance of the voice scarcely appreciable; for the first time complained of trifling cough, and of weakness.

> Rep. Pil. sine Hydrarg. Chlorid. om. nocte. Inf. Calumb. ℥iss.; Vin. Ipecac. ♏ xv. 6tis horis sumend. Gargarism sodæ chlorinatæ.

28th.—Complained of some aching pain; "weariness" in the affected side; but percussion elicited a good sound, and the voice and the respiration were natural.

After this date another blister was applied to the side; but she required no farther treatment than the exhibition of some tonic medicines to restore her strength. As, however, she was naturally feeble, and her weakness had of course been greatly increased by her disease and the means adopted for its cure, a considerable time was required for this purpose; she was, therefore, not discharged perfectly cured till towards the end of the following month.

Rheumatism.—Of the nineteen cases of this disease embraced in these reports, from being attended at the houses of the respective patients, I shall say very little, as they presented few features of particular interest; and as it is not my purpose here to enter *generally* into the history of any of the complaints that have been or will be noticed. Eleven of these cases occurred in females, of which eight were examples of the acute, and three of the chronic form of the complaint; and eight in males, of which three were acute and five chronic.

The cases of acute disease all occurred in young persons, varying in age from 11 to 26 years, and were for the most part treated in the same way. In none of them was bleeding thought to be necessary. Some old and experienced practitioners almost universally commence their treatment of acute rheumatism by the abstraction of blood; others altogether abstain from the use of the lancet in this complaint, from an opinion, real or imaginary, that general bleeding has a tendency to render the complaint erratic, and thus to favour the production of pericarditis. On this question I am unable from observation to form a decided opinion. I may, however, state that in the hospital practice of a physician, who was in the habit of constantly prescribing venesection in the treatment of rheumatitis, I did not observe a greater proportion of cases followed by inflammation of the pericardium than in that of other physicians who did not prescribe this remedy. It must at the same time be considered at least a curious coincidence, that, after the opinion to which I have referred had been for some time current in England, Bouillaud commenced his much vaunted "saignées coup sur coup," and just at the same time "*discovered*" that rheumatism was frequently accompanied with pericarditis. I have never yet prescribed venesection for rheumatism of the joints, not because I feared the induction of pericarditis, but because I have not found it necessary for the removal of the complaint. The treatment I have hitherto adopted with success has been very simple; and has consisted merely of the exhibition of a pill containing antimony and opium at night, or, if the pain has been very severe, twice or three times a day, with the occasional addition of one or two grains of calomel, if the constitutional excitement has been great, and if there existed any tendency to inflammation of the pericardium, or of other important organs. With these means has been combined a draught containing vin. colchic. ʒss. et magnes sulph. ʒj. to be taken three or four times in the 24 hours. In two or three days this medicine has produced copious yellow evacuations; and at the same time I have almost always found the acute symptoms and the general excitement to cease, not, I believe, from the simple purgative effects of the medicine, but from the specific constitutional operation of the colchicum, of which the peculiar yellow evacuations are *one* of the principal indications. Immediately these effects of the medicine have been obtained, I have ordered the decoction of cinchona with 10 or 12 grains of the sesquicarbonate of soda, with the most beneficial results; and the complaint has usually entirely disappeared in the course of a very few days. In two only of these cases was was there any inflammation of the pericardium, and in both of them had a similar affection of that membrane existed before. In one of them, a married woman, of light complexion, and sandy hair, calomel was freely administered after cupping. Profuse salivation, in consequence, I believe, of renal disease, was induced in less than two days: the inflammatory affection of the chest immediately disappeared, and the soreness of the mouth, and other complaints unconnected with the recent attack, were the sole subjects of her subsequent treatment. The other case was that of a young woman, aged twenty-four, who, while under my care for disease of the heart, the consequence of a previous rheumatic affection, was after exposure to cold attacked with rheumatitis. She was on the second day removed to a hospital, in which, after she had recovered in a degree from the acute disease of the heart and limbs, and had suffered for several weeks from some obscure head symptoms, she died, as was proved by a cadaveric inspection, from a large effusion of blood upon the brain.

In the chronic form of rheumatism I have tried a great variety of remedies, but have hitherto found none which were uniformly successful. Certain boasted specifics have occasionally had a good effect, but in the great majority of instances their exhibition has been attended with little benefit. Some cases have yielded to remedies which appeared to have little or no effect in others of the same kind. In two instances only, after having tried a great number of other medicines and combinations without benefit, have I prescribed the extract of aconite. In both these cases it certainly appeared to have a good effect in relieving the pain, but in one of the two its exhibition was followed by a papular eruption of the face and neck, which disappeared after its temporary suspension, and reappeared upon its readministration.

ON THE
LAWS WHICH GOVERN THE RISE, DEVELOPMENT, AND DECLINE OF EPIDEMIC MALADIES.

To the Editor of the Medical Gazette.

Sir,

My last communication will have put your readers in possession of some of the principal facts recorded in the Second Annual Report of the Registrar-General, regarding the late variolous epidemic. Mr. Farr, to whose valuable labours we are all so much indebted, is not content with a simple statement of his statistical researches, but he enters the thorny paths of œtiology, and throws out some hints regarding the origin, progress, culmination, and decline of epidemic maladies. These suggestions, founded on that extensive collection of facts to which Mr. Farr's official situation gives him access, appear to be well deserving of notice in your journal; and I now proceed to consider them, adding some comments of my own.

Many of the causes of death, he begins by remarking, act with equal force from year to year. Some are regulated by the seasons, and increase or decrease with changes in the atmospheric temperature. A third class of diseases are the epidemics which follow laws of their own. They remain stationary for months, years—nay even, as the records of medicine teach us, for centuries;—then suddenly rise, like a mist from the earth, to shed desolation on nations, and again to disappear as rapidly and as insensibly as they came. The origin of such diseases is necessarily obscure, but that obscurity has proved no stumbling-block in the way of medical theorists; some of whom have attributed them to mysterious changes in the atmosphere, some to terrestrial emanations, some to the agency of animalcules, some to heat, some to the deterioration of food, while not a few have thought that in the existence of a contagious principle the whole difficulty was solved.

Mr. Farr begins by shewing that the temperature of the atmosphere and the revolution of the seasons had nothing to do with the great variolous epidemic of 1837-38. A table with which he furnishes us (page 92) demonstrates that at the very period when the epidemic was at its height in one place, it was declining in another, and just commencing in a third. Thus, for instance, in the autumn of 1838, small-pox culminated at Manchester, (proving fatal in three months to 180 persons) while it had entirely ceased at Bath, was just beginning in Norwich, and was gradually declining in London. The epidemic culminated, or reached its maximum degree of intensity, in the several towns of England and Wales in the following order:—

Table exhibiting the period of culmination of the variolous epidemic in twenty-eight of the principal towns of England and Wales.

Period.	Date.	Towns.
1	July to Sept. 1837	Liverpool, Bath, Leicester.
2	Oct. to Dec.	Exeter, Wolverhampton, Bristol.
3	Jan. to March 1838	Taunton, Clifton, Worcester, Merthyr-Tydfil.
4	April to June	London, Birmingham.
5	July to Sept.	Haverfordwest, Pembroke, Bridgewater.
6	Oct. to Dec.	Leeds, Manchester, Plymouth.
7	Jan. to March 1839	Sunderland, Newcastle, York.
8	April to June	Norwich, Preston, Stockport.
9	July to Sept.	Oxford.
10	Oct. to Dec.	Salford, Bradford, Macclesfield.

Interesting as this statistical document is, we shall hardly, I apprehend, be justified in trusting to it, so far as to exclude atmospheric changes altogether from the possible causes of epidemic prevalence. After a lull of eighteen or twenty months, small-pox is again become epidemic in London. The first approaches of this new assault were perceptible in the first week of October. At the present time the weekly deaths average nearly sixty. It is, I think, highly probable that this diffusibility of the variolous contagion is connected with that remarkable dampness of the atmosphere, which has led to such heavy floods both in this country and throughout the south of France. In former times the dependence of epidemic small-pox upon a humid state of air was universally admitted, and the events of the present month afford a singularly strong corroboration of the doctrine.

The hypothesis that the immediate cause of epidemic disorders may be found in the generation of minute insects, is considered by Mr. Farr as worthy of some comment. He gives an abstract of the opinions entertained by Dr. Henle, of Berlin, upon this most abstruse question. According to this author, each epidemic disease has its specific animal contagion, its specific genera of infusoria. Dr. Henle, it is remarked, has, by a variety of curious analogies, given great probability to the theory of animalcular origin, but one little circumstance has been omitted—a trifle probably in the eyes of the German professor. Dr. Henle has never seen these epidemic infusoria, which is the more surprising when we reflect that Henle is one of the best microscopic observers of Germany.

Mr. Farr, rejecting this and all other hypothetical explanations of the origin of epidemics, arrives at the following conclusion:—"They are generated at intervals, *in unhealthy places*, spread, go through a regular course, and then decline; but of the cause of these evolutions no more is known than of the cause of the periodical paroxysms of an ague. The body, in its diseases, as well as its functions, observes a principle of periodicity. Its elements pass through prescribed cycles of changes, and the diseases of nations are subject to similar variations."

But though Mr. Farr thus luminously descants on the origin of epidemics, he subsequently admits that there is reason to believe that the practice of inoculation led to the extension of the epidemic small-pox of 1838, by artificially diffusing the infection. I cannot help thinking that too much stress has always been laid on inoculation as instrumental in the diffusion of small-pox. It certainly had nothing whatever to do with the growth and development of small-pox in London during 1838, where the disease raged much more severely than in any part of the country where inoculation was practised. This question is especially deserving of attention at this time, because the late Act for the extension of vaccination has effectually abolished inoculation; but it remains to be seen, whether it will abolish, or in any notable degree affect the amount and severity of variolous epidemics. It was remarked, more than sixty years ago, by very competent observers, that the artificial diffusion of small-pox by inoculation was very limited, and that the influence of such an agent was prodigiously over-rated. When no epidemic disposition existed, inoculation, it was observed, seldom did harm, and when such a disposition *did* exist, the disorder spread equally, whether inoculation was practised or not. I have a strong impression that many years will not pass over our heads before the truth of this doctrine in pathology will be made abundantly manifest, even to those who are now loudest in declaiming against the dangers of inoculation.

Mr. Farr has attempted, with his usual ingenuity, to trace the laws which regulate the rate of *epidemic decline*. He remarks, that the decline of the variolous epidemic was less rapid than its rise. The advance of small-pox is first at an accelerated, then at a retarded rate. Having attained its climax, it declines, first, at a slightly accelerated, then at a rapidly accelerated, and lastly, at a retarded rate, until the disease attains its point of minimum intensity, when it remains stationary.

Another point to which Mr. Farr draws attention is, the important question, whether the simple principle of contagion is sufficient to explain the rise and propagation of this epidemic? That the small-pox is contagious, is admitted on all hands; but it will be found that something more than contagion is required to explain the phenomenon of *epidemic expansion*. The disease, as he truly remarks, is always and equally contagious, and a certain number of deaths are caused by it in all seasons, and in every county in England. The facilities of intercourse, and the frequency of contact with the sick, are not greater when the disease is increasing than when it is declining.

They remain the same, whether the disorder be at its climax of severity, or its point of minimum intensity. Five persons die weekly of small-pox in London, when the disease is not epidemic. In the spring of 1838, these five deaths, having progressively advanced through the successive steps of 10, 15, 20, 31, and 58, multiplied at length to 88, and then steadily declined in a like series of measured steps, until they reached the original minimum of 5. The variolous epidemic of Manchester commenced in October 1837, when that of Liverpool was declining; but, as Mr. Farr well observes, it would be very false philosophy to assert that the commercial intercourse between these towns had any thing to do with the rise of the epidemic at Manchester. The Registrar's return shews that isolated cases of small-pox occurred in Manchester during the preceding months, and the same causes which occasioned epidemic prevalence in Liverpool would have led to the same results in Manchester, in spite of all quarantine regulations.

The simple principle of contagion, then, though it undoubtedly contributes to the diffusion of epidemic malady, is wholly insufficient to account for its sudden rise and subsequent development. As little is it capable of explaining the singular circumstances attendant on the decline of an epidemic visitation. It has, indeed, been contended by some, that an epidemic disorder lessens, and ultimately ceases, because the subjects of disease are exhausted, just as a fire goes out for want of fuel. But this explanation is little trustworthy, for it happens not unfrequently that an epidemic returns after a brief interval of repose, and, by its subsequent ravages, effectually demonstrates the futility of this notion. We are seeing this exemplified in London at the present moment: many are now attacked, who escaped the perils of 1838.

The conclusion to which all this tends is, that the phenomena of epidemic culmination and decline are as little understood as those of epidemic origin. Careful and reiterated observations, on a large scale, may, however, some day afford us a clue towards the elucidation of these interesting questions; and, if Mr. Farr's observations and statistical documents have done nothing else, they have at least cleared the way for future observers.

They have removed some of those delusions which have hitherto obscured our views of epidemic malady, and have made us see how little we really now know, and how much remains for future inquirers to determine.

I am, sir,
Your obedient servant,
George Gregory.

31, Weymouth Street, Nov. 21, 1840.

CASES OF COMPOUND FRACTURE OF THE CRANIUM WITH DEPRESSION,

WITH SOME REMARKS ON THE TREATMENT OF SIMILAR CASES.

By John Charles Hall, M.D. F.L.S.
Fellow of the Royal Medico-Botanical Society, and Member of the Royal College of Surgeons, &c. &c. &c.

(For the London Medical Gazette.)

Case I.—During the present year George Spencer, assistant groom in the stable of Earl Spencer, in removing some dung from one of the horses was kicked upon the head. I saw the poor fellow shortly after the injury had been sustained. There was a small wound upon the side of the head about the size of a shilling, from which there was a considerable flow of blood. It was evident the wound had been made by the heel of the shoe, which, upon examination, was found to be raised (what the blacksmith terms "turned up"). This portion of iron had been driven through the scalp with sufficient force to fracture the frontal and parietal bones on the right side of the head, and on introducing the finger the depressed portion of bone could be very easily detected. The man was a little stupid, and complained of being sick; the pulse was weak; the hands and feet cold. The wound was very carefully brought together with adhesive plaster, and supported by a bandage; the hair was removed from the head, and the man sent to his bed. Two hours after the accident I saw him again: pain in the head; skin hot and dry; pupils slightly dilated; has been very sick; pulse 100.

V. S. ʒxiv. Cold water to the head.
Two grains of Calomel every six hours.

7th.—Slight pain in the head; skin hot and dry. Saline aperients; cold water to the head. The bowels have been freely opened.

Vespere.—Still complains of pain; pulse 120.

℞ Pulv. Scam. gr. iv.; Hydrarg. Chloridi, gr. iii. hac nocte.

To continue to take nothing but a little tea and toast-water, which has been his only food since his accident. Ice to the head.

8th. — Pupils more dilated; more pain in the head; intolerance of light; pulse 120, hard and full.

V.S. ℥xvj. Saline aperients, with antimony.

Evening.—Blood drawn away a good deal "buffed;" says he is much relieved by bleeding; bowels freely opened. Continue the saline mixture with emetic tartar. Two grains of calomel at bed time.

9th.—Less pain in the head; wound looks healthy; slight puffiness of the scalp, into which a lancet was plunged; pupils still dilated. To have a little mutton broth.

10th.—Pain in the right ear; puffiness of the integuments entirely removed; mouth slightly affected by the calomel; pulse 100, full, and rather hard.

V. S. ℥viij. Omit the mercury.

11th. — Much better; blood taken yesterday buffed; pulse 90; skin moist.

℞ Liq. Ammon. Acet. ℥ii.; Spir. Æth. Nit. ℥ss.; Aq. Menth. Vir. ℥x. sextâ quaque horâ. Pulv. Jacobi, gr. iv.; Hydrarg. c. Creta. gr. vi. hac nocte. Cold water to the head.

12th.—Still improving; has now little pain in the part, and appears anxious to leave his bed. He was, however, still confined to his room, his bowels kept well open, and his diet mutton broth and tea. He gradually recovered under this treatment, and is now as well as before the accident.

Case II.—For the particulars of this case I am indebted to my old friend Mr. Lane, the Lecturer on Anatomy. A little boy of the name of Lee, between four and five years of age, was playing in a stable yard, when the shafts of a phæton fell upon his head, and the iron projection on the under surface of the shaft for the purpose of fixing the harness made an indentation into the child's head, into which you might place the end of your finger. The scalp was divided, and the bone depressed to the depth of a quarter of an inch. The little fellow was stunned for a short period only, vomited, soon recovered its circulation, and in a few hours appeared in its ordinary state of health. Nothing worthy of mention was done for the child: symptoms were watched for, but none appeared; a piece of bone larger than a sixpence exfoliated, and after the wound healed a considerable depression remained.

Case III.—A man employed in building some houses was standing under a ladder, when a piece of iron, the end of which was about the size of a shilling, fell upon his head, passing through the integuments, and beating in a portion of the skull. The man said, "That nothing was the matter with him, that he felt stunned for the moment, but was then quite well, and that if his wound was *done up* he could go to work again." This opinion was over-ruled, and it was decided that the trephine should be used, for the purpose of raising the depressed portion of bone. The man said nothing, not knowing what a trephine was, but when it was brought, declared "he would take very good care that no one should make a hole into his head." The wound was carefully closed, the man sent to his bed, and largely bled: symptoms were looked for, but none arose, and in a short time he was quite well.

Case IV.—Mr. P——, at the age of 16, whilst riding down a very steep hill was thrown off his horse, and fell with very great violence on his head. When taken up he was quite insensible, and a severe wound of the head was found to have been received. The surgeons called in, on examining the injury found that the scalp had been divided over the right parietal eminence, and the bone below fractured with considerable depression. According to the admitted principles of surgery in those days the scalp was divided on either side of the wound, and the fracture traced out to its ultimate terminations with scrupulous and laboured care. What was to be done? Compound fracture of the skull, with depression and symptoms of pressure upon the brain. The trephine must be used, and preparations were accordingly made for performing the operation; which, however, was suddenly put a stop to by the gentleman recovering his senses, and by the removal of all symptoms of concussion and compression. The question now arose whether it was safe to allow the case to go on without elevating the depressed portion of bone; this part of the business was, however, decided by the patient, who declared that no operation should be performed: he was, therefore, removed home, and the wound allowed to heal, and notwithstanding the additional scalping of the surgeon, it did so without any untoward symptom. Forty years have now rolled away since the accident: the gentleman is still alive, with a depression of the right parietal bone, of about a quarter of an inch deep, and an inch and a half long: he has never suffered any pain or inconvenience from it: he is the father of a numerous healthy family, one of them in good practice as a surgeon, and to him I have to return my thanks for the outline of this truly interesting case.

Case V.—A man was brought into the hospital in Paris, under the care of M. Roux. He had received a blow upon the head, wounding the scalp and fracturing the frontal bone, which was considerably depressed. He was quite insensible for some time, but recovered sufficiently to walk to the hospital: he complained of pain in the head, which he wished to have dressed, in order that he might return to his employment. He was, however, advised to remain in the Hôtel Dieu, which he did for three weeks. He was only bled once, and kept upon a very low diet. The man never had a bad symptom, and perfectly recoverd.

Case VI.—A little boy was admitted into the Hospital of University College, London, under the care of Mr. S. Cooper, for an injury of the head received five weeks before. There was a fracture with considerable depression, with a wound leading down to it. The seat of injury was the frontal bone, the accident being occasioned by a blow from the handle of a pump. As the lad was sensible he was only bled and purged, a cold lotion applied to the head, and an antiphlogistic diet strictly enjoined. No serious indisposition came on, and the lad soon got well, although a considerable depression remained; and, adds Mr. Cooper, "I have seen many cases of depressed bone with a wound of the scalp do well without the use of the trephine." Let us now direct our attention *to the treatment of similar cases.*

We have selected the above from several cases which have come more particularly under our own immediate observation. We have perhaps in the course of our experience seen as many more do well in which nature was allowed to work her own cure. We have seen some get over the operation of trephining, have seen many die, and have from this circumstance been led carefully to examine the subject for some years past, and to come to the conclusion hereafter mentioned. If the reader wishes for additional cases, he may refer to the writings of Dease, Desault, Abernethy, Crampton, and S. Cooper.

No operation has been more discussed than the one more particularly under consideration; the champions of the trephine and the anti-trephiners appearing rather anxious to gain advocates in favour of their particular opinions, than to discuss the subject with a due regard to the facts before them, and from facts alone to draw their conclusions.

In all cases of injury of the head, it will be very important to inquire whether the patient has remained insensible from the first infliction of the injury. If he has done this we have in the first instance every reason to hope that the symptoms are the result of concussion. In the case of the little boy Lee, (Case II.) though stunned by the blow, the brain gradually recovered its proper functions. Mr. P——, (Case IV.) remained insensible for a considerable time, until the side of his head was half scalped by the surgeon, and yet he awoke in time to prevent the operation, and remains alive to the present day. The shock the brain has received by the concussion will continue to diminish, and after a time cease altogether, for if the force applied, when the blow is received, be not sufficient to produce alarming symptoms, it will not do so afterwards, for it is not reasonable to suppose that a cause insufficient to produce them in the first instance will do so when its power is considerably diminished. If immediately after the infliction of the injury the man gets up and walks away, it is clear that the brain has not suffered from concussion; still the patient requires to be well watched, for in an hour he may become drowsy, perhaps insensible, and then the case must be regarded as one of compression. This cannot, however, be of use on all occasions, for we may have concussion and compression combined. Still the rule is a good one, and ought never to be lost sight of.

In many cases of concussion of the brain, we have seen much injury produced by the abstraction of large quantities of blood. A man falls from the top of a house; he is taken up insensible, with cold hands and feet, and a feeble pulse. The pulse rises a little, and some blood is immediately taken away. It rises again, becomes a little fuller, and some more blood is added to the first, and this is again and again repeated, and in time the pulse will become weaker, and the patient sinks and never recovers. We are aware that the opinion now expressed differs from that entertained by many surgeons, and yet repeated observations have induced us to conclude that concussion of the brain acts upon the general system in nearly the same manner as syncope arising from irritation, fever, grief, or any other cause, and in the treatment of which blood-letting is known to be injurious.

" Immediate dissolution, like syncope, probably depends upon an affection of the brain induced by great loss of blood, or the loss of even a very small quantity in a constitution enfeebled by disease." Now if this opinion of Dr. Marshall Hall be correct (of which there can be no doubt) it will appear very clear that the abstraction of even a very small quantity of blood, when the functions of the brain are as it were suspended, and its energies considerably weakened, is likely to be productive of the most serious consequences.

We are at a loss to account for the way in which a person five minutes before in the possession of health, and capable of supporting the evacuation of a large quantity of blood, becomes by a blow upon the head, which does not fracture the bone, unable to bear the loss of a wineglassful, yet, nevertheless, attentive observation has convinced us of the fact, and all who take the trouble to read this page of nature's work will come to the same conclusion. Be it, however, remembered that although we may have a very correct knowledge of the structure of the brain and of its several parts, yet we must also confess that we have much to learn before we can state the manner in which its several functions are performed. We have seen the dissection of several brains in which the person was said to have died from concussion induced by a severe blow upon the head, without being able to discover any traces of inflammation, and yet the symptoms during life were such as pointed to the brain alone as the seat of injury. From the want of traces of inflammation after death in cases of concussion, as well as from the evident injury we have seen produced during life, we do think the frequent abstraction of large quantities of blood both uncalled for and injurious in cases of concussion of the brain. We remember the case of a man who was knocked down by the Dart coach, in the streets of Kensington. When called upon to attend him, we found his arm bound up, and a chemist about to open a vein. The man was cold; his lips bloodless; nor could either the pulse at the wrist or the beating of the heart be felt. Some brandy and water was given; he could not swallow. He was placed in a warm bath, rubbed dry, and put into a warm bed; the head shaved, and covered with cloths dipped in cold water. It was twenty-four hours before he spoke at all, and many days ere we could get him to do more than answer "yes" or "no," or "leave me alone." It was three days before it was thought necessary to take away any blood. Eight ounces abstracted relieved a fixed pain in the head, and the man perfectly recovered.

The question now more particularly before us is, ought the trephine to be used in cases of compound fracture of the cranium, in the absence of symptoms indicative of pressure upon the brain?

It is, no doubt, a matter for serious thought, a subject on which no man would venture to give an opinion, without first devoting to it the most attentive consideration. If the bone could be raised without additional injury to the soft parts—if the portion of skull could be lifted from the brain without violence, without opening the cavity of the cranium, and exposing the brain and its membranes to additional injury—then we should have no doubt upon the matter; but can we do so? Experience answers, no. If, however, after waiting a reasonable time, the symptoms of compression remain, the patient must not be left to die. We have numerous cases on record in which the operation has succeeded in snatching individuals from the jaws of death: perhaps the most interesting is that related by Mr. S. Cooper, of a man belonging to the 44th regiment, who was struck by a musket-ball on the right parietal bone, which had been exposed, but without any appearance of fracture. The poor fellow being all but dead, the trephine was applied; the external table came away, showing the internal table driven into the brain: this was removed; the man at once got up, dressed himself, and perfectly regained his health, without a single bad symptom. But in the absence of symptoms denoting pressure upon the brain, we are justified in leaving the case without the performance of this operation. The cases already quoted, the numerous ones on record, prove that the brain may bear a slight degree of pressure without injury. "But you do not trephine for symptóms that are present; you do so to prevent others which may possibly arise." If, however, the brain accommodates itself to the pressure in the first instance, we are at a loss to conceive why it will not continue to do so: if it performs its proper functions soon after the infliction of the injury, neither reason nor experience teaches that it will not do so throughout the patient's life, as in Case I., Case IV., and the cases related by Mr. Abernethy and others; and it is notorious that the experienced Desault, in the last years of his practice, abandoned the operation altogether, owing to the dreadful fatality which attended it in the Hôtel Dieu; and even now, both in France and England, the opinion of its most strenuous supporters begins to wave.

Mr. Liston, in his work on Operative Surgery, remarks that the upper part of the brain often bears from the first a great deal of pressure with impunity, or it becomes accustomed to it, or the symptoms abate, the patient recovering, with a great portion of the bone completely under its natural level. He, however, contends that the use of the trephine is necessary in punctured fractures: "the presence of the numerous sharp spiculæ from the internal table, for even a short period, is frequently followed by intense inflammatory action, propagated to the brain and its more immediate investments. At all events, even if he escape this danger, he is apt to suffer at a later period from abscess under the bone, occasioned and kept up by the dead portions." This opinion, coming as it does from this experienced surgeon, demands our most serious examination. The case of Ridley; the boy Lee; that of the man struck with the iron bar; the case of the woman struck by a brass candlestick, and the boy kicked by a horse in Smithfield (the two latter related by Mr. Abernethy), would almost cause us to pause ere we resorted to the operation, even in punctured fracture. Is it too late to have recourse to it at a later period, when we have symptoms proving such injury to exist?

We think the case of the nephew of Lord Brougham, related by Mr. Crampton, bears upon this point, and proves that even fragments may be driven into the substance of the brain without their immediate abstraction being required or warranted, although we should endeavour to remove them as a general rule; nevertheless it will be sure to have exceptions. In the case just mentioned the moment Mr. Crampton touched a large portion of bone with the intention of removing it, (for the fragment was buried in the brain,) the body became convulsed, and the patient moaned deeply; all further efforts were desisted from—the case was left to nature—strict antiphlogistic measures resorted to, and at the end of twenty-two days the small pieces of bone were discharged by the process of nature. And what says the experience of an old army-surgeon—of Mr. S. Cooper? If the depressed portion of bone be denuded by a wound of the scalp, a trial to raise it with the elevator may sometimes be proper, even though urgent symptoms of pressure do not exist: in such cases Sir A. Cooper sanctions the use of the trephine; yet my own experience and reflections would induce me to abstain from the operation.

Case VII.—Since the above portion of the paper was written, in looking over an old note-book, I find the case of a man attended by me about two years ago. In that colony of Irish, Kensington Buildings, a policeman informed me that a fight had taken place, and on following him to the spot we found a poor fellow upon the ground senseless. Upon cleansing his head from the mass of clotted hair and blood which was upon it, three very severe wounds were discovered. The scalp was much injured, owing to the wretch who inflicted the injury having first beaten his victim with a stone, and then jumped upon him with his nailed boots. One of the wounds extended from the temporal to the parietal bones, and on introducing the finger a fracture with very considerable depression presented itself. While debating what should be done, the man began to turn in his bed, was sick, and shortly after spoke, asking "if they had got Black Ned," which it appeared was the name of the man who had injured him. He was bled, the bowels well opened, and a poultice applied to the head, for it was vain to attempt to heal the wound by the first intention; yet, notwithstanding the depression of the bone, the age of the patient (forty-six), the contusion of the integuments, and a constitution enfeebled by want and intemperance, the man recovered without a bad symptom.

It will then, we think, appear that we have before us a sufficient number of facts to warrant the conclusion that, in numerous cases in which the skull has been fractured, and the bone driven down upon the brain, no inconvenience has been experienced by the patient. That some degree of pressure can be sustained by the brain is clear in the first instance from the absence of pain or headache immediately after the injury; that such inconvenience does not arise long afterwards is obvious by an examination of numerous cases; that of Mr. P——, (Case IV.) is confirmatory of the fact, as are also the cases related by Mr. Abernethy and Mr. Hill.

We grant that severe indisposition frequently continues before the patient returns to a state of health—we grant that after severe fracture, with depression, the issue is often doubtful, and the scale is poised equidistant between life and death; but while we admit this we must admit also that these symptoms are often present in cases in which the bone has been elevated, and in cases where you have no fracture, but simply a wound in the integuments. Had the trephine been used in the case of the groom of Earl Spencer the man might have got well; no bad symptoms might have arisen had the same antiphlogistic treatment been resorted to, and had the result been the same the advocate for the trephine would have quoted it as an instance of the necessity of elevating the bone in all cases, to prevent symptoms which were kept down by the lancet and purgatives, without running the risk of exposing the brain.

We therefore are justified in coming to the conclusion that the brain can bear considerable pressure without injury; nor can we see what arguments can be brought to bear against the opinion of Abernethy, that the brain accommodates itself to the pressure, and that which can be sustained at first is not likely to be productive of injury at some future period. Even if in cases of internal fracture the internal table is starred—if fragments are driven upon the brain, we think we are not justified in performing the operation in the absence of symptoms denoting such a state of things to be present. Mr. Birch relates the case of a negro, who received a blow upon his head, fracturing the skull. Shortly afterwards he was seized with epileptic fits, which continued for many years. He was admitted into the hospital, and a portion of the bone found still depressed. It was removed with a trephine with considerable difficulty, owing to a little spica of bone which had entered the dura-mater, and penetrated the brain. The man perfectly recovered.

If the operation were in itself unattended with danger, that would be an unanswerable argument for its employment in all cases of compound fracture with depression; but this unfortunately is not the case. Now, as it can be clearly proved that injury done to the integuments and bone, where there is neither fracture nor concussion, is often productive of fatal inflammation of the brain, the argument to employ the trephine for the purpose of preventing inflammation is untenable, for the additional injury inflicted in its application will tend rather to increase than to diminish it.

We come not then to this conviction without a due examination of the subject; but with numerous facts before us we can come to no other conclusion —we can lay down no other rule than this, viz. That the trephine ought never to be used, even in cases of compound fracture of the bones of the head with depression, without symptoms denoting pressure upon the brain.

It appears that no harm results from delaying the operation; it is proved that cases frequently do well without it; it is proved that if antiphlogistic measures are continued upon the subsidence of the inflammatory symptoms attendant upon or immediately following the injury, the pressure may be found of little consequence. Nothing is lost by delay. The risk of increasing the danger by operating upon parts in an active state of inflammation is avoided; at any rate you avoid the danger of increasing the inflammatory action set up in the parts by the injury inflicted, and the reasonable hope may safely be indulged, that in the great majority of cases the danger will not be incurred of making a hole into the cranium, through which the brain will be very liable to protrude.

Doctor Reese, of America, informs us "that in the United States the trephine is now much more seldom used than formerly:" in France and England it is daily growing into disuse: it is an operation not to be performed without the most urgent necessity—"gravis tamen satis est operatio, ut nunquam nisi indicationes adsint institui debet."

In reading over what we have already written we find that we have omitted to caution the patient as to the mode of life to be led for months after the infliction of an injury of this nature. Excesses of any kind must be carefully avoided, the bowels kept constantly open by aperient medicines, and every thing shunned that can tend to produce the slightest excitement of the system.

Bath Place, Kensington, Oct. 1840.

NEW OPERATION FOR LATERAL CURVATURE OF THE SPINE.

To the Editor of the Medical Gazette.

SIR,

I FEEL much pleasure in transmitting to you the particulars of an operation which I performed on Wednesday last, in the presence of Mr Coulson, and Mr. White, Demonstrator of Anatomy at the Medical School, Aldersgate Street; and as it is one that has never before been performed in England, it may not perhaps be deemed an unacceptable communication to your valuable journal.

The subject of operation was a lad, 17 years of age, who had been affected with lateral curvature of the spine three years. His business was that of a printer, in which occupation he was daily employed in pulling the press, whereby he was in the habit of putting into excessive action the latissimus dorsi and rhomboid muscles of the right side, whilst those on the opposite were comparatively inactive: the consequence of this was, that in six months after his apprenticeship to the business he began to feel an uneasiness, and, as he describes it, a burning sensation in the upper and right side of the back: this was shortly after followed by an enlargement of the right shoulder, and a lateral curvature in the dorsal region. This continued to increase, so that when he applied to me, about eight months since, the deformity was very striking. On examining the back, I found the deviation to extend from the last cervical to about the sixth dorsal vertebra: below this the vertebræ suffered no displacement, but occupied precisely the mesial line of the back,—a circumstance most unusual in a case of so long standing. The right shoulder was considerably elevated above its fellow, with a corresponding displacement of the clavicle, but there was no excurvation of the ribs: on either side they retained their natural situations.

The rhomboid and trapezius muscles were greatly enlarged, and by bringing the forearm across the chest were so stretched that a finger could easily be passed beneath the rhomboideus minor. The muscles on the left side were so diminished in bulk that they could scarcely be traced,—a circumstance I hold of great importance in the operation.

His general health had been good, with the exception of suffering occasionally from enlarged cervical glands. As his means would not allow him to adopt my regular course of treatment for these affections, I recommended him to keep as much as possible in the prone position, to use my extension apparatus, and to employ certain forms of exercise.

In consequence of the nature of his employment he was prevented from pursuing this course with the regularity wished, and the right arm was daily occupied in pulling the printing press. I lost sight of him until last week, when he again applied to me, and not finding the slightest improvement in the state of his back, I explained to him the nature of an operation which had been performed by M. Guerin, in Paris, and lately by Dr. Hunter, of Glasgow, and recommended him to undergo it, as the only probable means of effecting a cure; and without hesitation he assented.

The patient being placed in the prone position, with the chest considerably elevated, and the head hanging over the table, Mr. Coulson produced tension of the muscles on the concave side of the curve by drawing the left arm forwards, whilst Mr. White, by raising the right shoulder upwards and outwards, kept the rhomboid and trapezius on the stretch. I then introduced my knife (which was about four inches in length, and the eighth of an inch in breadth) as close to the ribs as possible, midway between the inferior angle of the scapula and the spinal column, and carried it upwards as far as its superior angle: I then withdrew the knife, bringing its cutting edge in contact with the anterior surface of the muscles, and as close as possible to the integuments, without wounding them, and in this way completed the operation, which occupied less than a minute. The loss of blood was trifling, and the patient complained of very little pain.

This case is interesting, inasmuch as it establishes the fact, that deformities of the spinal column are not always dependent on a diseased action of the muscles on the concave side of the curve, but that many of the occupations of life have a tendency to produce lateral curvature of the spine, by exciting unequal power over the antagonizing muscles, and on one side reversing the mode of action, as was seen in this case, the shoulder being made a fixed point towards which the spine was forcibly drawn.

In the curvatures that are met with amongst young children and delicate females, a totally different course is at work, and the muscles on the convex side of the curve are considerably diminished in size and density in consequence of their elongation; being made to take a circular course around the projecting vertebræ, and, by the same rule, those on the opposite side having become shortened, acquire an increase of action, and are firmer and stronger.

This case also strengthens the views I have adopted in the third section of my work on "Lateral Curvature," and which I think prove beyond a doubt the fallacy of Mr. Shaw's argument, in regarding the deformity of the dorsal vertebræ as a result only of a primary curve at the loins; for in this instance not the slightest trace of deformity existed below the sixth dorsal vertebra.

I remain, sir,
Your obedient servant,
G. B. Childs.

Wood St., Cheapside, Nov. 20th, 1840.

FIT AGE FOR VACCINATION.

To the Editor of the Medical Gazette.

Sir,

On reading the regulations regarding Vaccination, issued by the Guardians of different parishes, as authorized by a recent act of parliament, they gave me the impression that very circumscribed views must have been taken by parliament when it passed that enactment. In the first place, it implies that small-pox can only be engendered from personal infection, and aims at its complete extermination. In the second place, the proposed means of accomplishing this desideratum is the vaccination of infants at the early age of six weeks.

Before this doctrine of extermination was made the basis of such regulations, the main point of the doctrine itself should have been established, viz. that small-pox,—unlike hooping-cough, measles, or chicken-pox,—has no other origin than that of being imparted from one individual to another. This point has not, however, been proved: on the contrary, the faculty could produce an abundance of evidence to prove that small-pox often springs up, in an isolated manner, in towns, villages, and in districts, under circumstances which afford no reason whatever to refer it to an infectious origin, but as if engendered, independently, in the individual's own frame; and that it sometimes makes its appearance as an epidemic, in different parts of a town, at periods within a day or two of each other.

Although the public may be lulled

by an act of parliament into a false notion of security, yet the faculty would expect,—even if the disease could, by early vaccination, be completely extinguished for a time, which is scarcely possible,—that it would, if vaccination were then to be neglected, soon spring up again as an epidemic.

With regard to the period of vaccination. Vaccination on the sixth week appears premature, and therefore calculated to defeat the object it is intended to fulfil. In making this remark I shall probably differ from most of the faculty; let it be, however, remembered that a new-born infant is formed of merely a temporary substance, scarcely any part of which continues to compose the body of the child when six or eight months old. Therefore, to implant in this changeable body the principal of the vaccine virus is not to endow its future substance with the power of resisting the infection of small-pox. I am induced to submit this proposition for the consideration of the faculty, it having been my practice not to vaccinate children at an earlier age than eight months, unless small-pox were occurring close in the neighbourhood, and not having had, in consequence I presume, a single case of failure. I should expect that if an account were to be furnished of the respective ages at which vaccination had been performed in any given number of cases of failure, that the frequency of failure would correspond with the earliness of vaccination.

If these premises should prove correct, the observance of the regulations issued by the parish authorities will tend to prevent the occurrence of small-pox during infancy only, but greatly to increase the number of failures which will occur at later periods. For the poor will not be much disposed to take their children to be vaccinated a second time; in short, the instances of small-pox occurring after vaccination, whether it had been performed too early or not, have been so numerous, that the majority of the poor have lost their confidence in vaccination as a preventive of small-pox. Government should, therefore, have provided that they should, as well as the surgeon, receive a gratuity on each occasion; which gratuity, however small, would have proved a much more effectual means of securing a general vaccination of the poor children of this kingdom than the plan about to be adopted.—I am, sir,

Your obedient servant,
Henry S. Searle.

Queen's Place, Kennington Common,
Nov. 18th, 1840.

ERGOT—RUPTURE OF UTERUS.

To the Editor of the Medical Gazette.

Sir,

Should you deem the following case of sufficient interest, I should feel obliged by its insertion in your valuable periodical.—I am, sir,

Your obedient servant,
George Coward.

London, Nov. 19, 1840.

A poor woman having been in labour for some hours, and the pains, although regular, not effectual, the midwife who was in attendance, without regard either to the dilatation of the os uteri, or the condition of the soft parts generally, administered a powerful dose of the secale cornutum, from impatience, unguided by judgment. The medicine, after the usual interval, produced most rapid and violent contractions. And, as in this case, extreme rigidity of the os internum existed, the main force of the uterine contraction was expended on the womb itself. Now the uterus for some time sustained uninjured this violence and intensity of action; but, after some time, prostration succeeded to excitement. The pulse became rapid and feeble; the skin cold, and covered with a clammy perspiration; the features collapsed, and the countenance expressive of anxiety; the uterus had given way, a thinning having existed opposite the promontory of the sacrum, as post-mortem examination ultimately proved. The gentleman with whom I resided was summoned at this stage of the case by the midwife. He found her pale and moribund; and, in fact, she expired almost immediately on his arrival by the bed-side. On post-mortem examination, a large irregular lacerated opening, extending somewhat transversely, was found at the lower and posterior part of the uterus, originally formed by its neck: the child lay in the cavity of the abdomen, which also contained a few ounces of blood.

Remarks.—The phenomena of the foregoing case must clearly prove, to every unprejudiced mind, that ergot is capable of acting immediately on the uterus, and that with great violence, not simply " by influencing the imagination :" how else can we explain the severity of the uterine action which I have alluded to? so violent, indeed, as to lead to its rupture, and the fatal consequences. That the ergot, when administered with proper judgment and precaution, is an invaluable remedy, in want of action in the uterus, when no mechanical obstacle exists, appertaining either to the mother or the fœtus, is now pretty generally acknowledged. This point needs no further comment. I shall terminate by saying, that its action is frequently violent, and should, therefore, be avoided in all cases where existing circumstances do not absolutely demand obstetric interference.

CIRCULATION WITHOUT RESPIRATION.

To the Editor of the Medical Gazette.

Sir,

Conceiving the following case to be an unusual one, and not devoid of interest, I take the liberty of communicating it for insertion in your journal.

I am, sir,
Your obedient servant,
Rob. Gorton Coombe.

15, Great Marylebone St.

Case.—William Blake, æt. 60, on Wednesday, October 14th, was taken suddenly ill whilst at work. I saw him immediately, and found him insensible. *His respiration had quite ceased.* His extremities were warm, and not at all paralyzed, but now and then they were slightly convulsed. His eyes were fixed and glassy. The external jugular veins, and all the superficial veins of the head and neck, were greatly distended. His countenance was livid, and the tongue slightly protruded. When I first saw him the action of his heart was uninterrupted, and continued to beat with energy for ten minutes. After this it continued its action, but with less energy, for twenty minutes, being at one time very distinct, and at another almost imperceptible, until, at the expiration of three quarters of an hour from the first time I saw him, the action of the organ became imperceptible both to the hand and ear. Mustard poultices were applied to the calves of the legs and epigastrium, and other remedies were ineffectually resorted to.

An autopsy discovered a ruptured vessel at the base of the brain, from which a quantity of blood had escaped even to the distension of the lateral ventricles.

Remarks.—The continuance of the heart's action in this case, for so long a period after the function of respiration had altogether ceased, is very remarkable. In cases where persons have been attacked in a manner similar to this, and where post-mortem examinations have exhibited effusion of blood in the brain from a ruptured vessel, I have observed the heart's action to have ceased in a few minutes after the function of respiration was arrested; and in no case am I aware that the heart continued to pulsate for so long a period as in the present instance. The quantity of blood which the lungs contained at the time that the respiratory movements were put a stop to by the compression of the brain and medulla oblongata, and the constant supply of blood derived by the heart from this source, doubtless acted as a stimulus to that organ, exciting its contraction so long as the supply was afforded, and as this supply became less, so did the contractions of the heart become more feeble, until they finally ceased.

On looking over an interesting article in the Cyclopædia of Surgery, by Mr. P. Bennett Lucas, on the "Theory of Asphyxia," I find that the arrest of the circulation first takes place in the capillary vessels of the lungs: therefore the long-continued supply of blood which the heart in this instance received must have been derived from the larger pulmonic trunks, and from the venous trunks of the system generally; and the quantity of venous blood in this patient's body would be considerable, from the circumstance of his being a robust man, and from none of that fluid having been taken away by venesection; thus corroborating Mr. Lucas's views on this subject, viz. that the heart will continue to beat as long as it receives a sufficient supply of even venous blood.

From the convulsions of the extremities which occasionally manifested themselves during the attack, I conceive that the facts of this case likewise confirm the opinion of Dr. Kay, (quoted in the above-named article) in opposition to the theory of Bichat, viz. that venous blood "is capable of exciting, instead of destroying, the contractility of the muscles."

PUERPERAL CONVULSIONS.

To the Editor of the Medical Gazette.

Sir,

Should you think the following case of puerperal convulsions worthy of a place in your valuable journal, I shall feel obliged by your inserting it.

I am, sir,
Your obedient servant,
James Kirk.

405, Gallowgate, Glasgow,
Oct. 28, 1840.

October 18th, 1839, 8 A.M., was requested to see Mrs. G——, a fine healthy young woman, in the ninth month of her first pregnancy, who was said to have fallen suddenly into a nervous state at seven this morning. On inquiring if any cause could be assigned for this state, learned that she had been alarmed during the night by a cat which had concealed itself in her bed-room. On arriving, found patient in bed; insensible; pulse quick, but becoming slower every time it is felt; pupils dilated; breathing performed with a snoring sound; distortion of the countenance, and convulsions of the whole body; does not answer when spoken to. In fact, carus with convulsions.

> Fiat venesectio ad ʒxxiv.; et habeat statim enema cum Ol. Terebinth. ʒj. et vitello ovi unius. Lotio frigida capiti capillis prius abscissis.

10 A.M.—No better; only one stool from injection; has had nothing resembling labour pains; *os uteri* cannot be felt on examination.

> ℞ Sub. Mur. Hyd. gr. v.; Pulv. Scammon. gr. ij.; Pulv. Gambog. gr. j. M. Sumat statim.

4 P.M.—Convulsions gone; coma still present. Continue cold lotion to the head.

> Sinapismata pedibus.

19th—Still comatose; convulsive jerking of left leg and arm.

> Repetatur venesectio ad ℥xij.

Patient attempted to seize the lancet, being the first sign of consciousness she had given since commencement of illness; continue cold to head, and repeat sinapisms to feet.

20th.—Much better; no coma; no convulsions; has been able to take a little tea and toast for breakfast; answers when spoken to; complains of pain of head; belly much smaller from descent of the uterus. Shave the head and cover it with a sinapism; (this, however, was not done till the following day;) to be sent for when labour commences.

4 P.M.—Has been in labour for some time; uterus and vagina laid into one continuous passage; head presents; puffy tumor of scalp; bones of cranium widely separated.

6 P.M.—Labour just concluded; child still, as was to be expected; placenta did not follow readily; patient incoherent. To be well watched. Both fœtus and placenta seemed healthy.

21st.—Neither coma nor convulsions, but they have been succeeded by puerperal mania, for which the head was shaved, and a sinapism applied over the whole scalp; this was followed by a blister to the nape of the neck, and the use of the camphor mixture, while sleep was procured by a draught containing hyoscyamus, ether, and valerian. Under this treatment she recovered so well as to be able to be sent to the country a fortnight after confinement.

MEDICAL GAZETTE.

Friday, November 27, 1840.

> "Licet omnibus, licet etiam mihi, dignitatem *Artis Medicæ* tueri; potestas modo veniendi in publicum sit, dicendi periculum non recuso."
> Cicero.

FARTHER INVESTIGATION RESPECTING THE DEATH OF ELIZABETH FRIRY.

This remarkable case continues, and very deservedly, to be the subject of inquiry. The question, as far as regards poor Friry herself, is one of the most painful interest. Was her death merely hastened by neglect, and her last hours embittered by those who should have afforded her relief, or did she die of actual starvation? But when we ask how many more victims may have been offered to the Moloch of economy—when we consider how many of these wretched outcasts may sleep in the cemeteries of England, their fate scarce known beyond the boundaries of their parishes, and but whisperingly commented on by those who are destined shortly to follow them, it is hardly possible to over-rate the importance of the investigation.

Every one, in fact, that feels the innate consequence of the present inquiry is enhanced by its being a key to hundreds of suppressed cases. The New Poor Law, like the deadly Manchineel-tree, scares away those who would ascertain the fate of its victims; and our curiosity is thus increased to hear the disclosures of the bold few who have penetrated its mysterious shade.

Without imagining a coroner to be much worse than other men, we may easily suppose him to be reluctant to hold inquests in cases of death from starvation. The mere holding of such an inquest is more than a half censure on Boards of Guardians and other comfortable people, who in old English were called "men of worship," and in the slang of the day, are "respectable." But the censure is doubled if we suppose the coroner to issue his warrant for the disinterment of the emaciated corpse, already hurried into its grave. The dismal spectacle is a reproach to the authorities; and before the verdict has been returned they are obliged to confess, like the king in Hamlet,

> "We have done but greenly,
> In huggermugger to inter him."

Now, the coroner may be an attorney, with six children, and a great desire of drawing up more leases: is it too depreciating a view of human nature to suppose that he will lean to the side of those who prescribe, rather than to that of the men who drink, the water-gruel; that he will endeavour to persuade himself that dietaries can scarcely be too spare, or relieving officers too austere? Let us rejoice, therefore, that the case of Elizabeth Friry has been so repeatedly investigated, and so amply reported, as to afford instruction to the Poor Law authorities throughout England, and to show them, in the words of Sir E. Head, that the manner of officers of unions to the poor, and the regularity of attention to and attendance on them, are as much to be considered as the quantity and quality of what they receive. Another lesson taught by Sir Edmund is, that "the rule in all unions over the kingdom is, and the Poor Law Commissioners wish it to be understood as such, that in common cases it is necessary for a medical order to be obtained first, but in urgent cases medical officers are not to wait for that."*

It certainly savours of the curious, that the Commissioners should have kept their Poor Law school so many years, without being able to teach their pupils this elementary point; but so it is. A Board of Guardians shall show itself *cereus in vitium flecti*; it can learn the art of making gruel of such singular attenuation, that between that and water nothing lives; but to learn that urgent distress requires instant succour is a lesson too hard; and the Board still has to master the alphabet of charity after five years' schooling. As a striking example of this deficiency, we may mention the case, on which we slightly touched in our last number, of Ann Griffin, the woman who was lately delivered in a cab. This poor deserted creature was driven, while in labour, first to a house in Gerrard Street, next to the Westminster Hospital, then to

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* Times, Saturday, Nov. 14, 1840.

Queen Square, a "doctor's shop" in Tothill Street, the lying-in hospital in York Road, Lambeth Workhouse, St. James's Workhouse, King's College Hospital, the station-house in Bow Street, and finally to St. Giles's Workhouse, where she was taken in. The investigation into her case took place on the 13th of this month, at Lambeth Workhouse, before Sir Edmund Head. Several members of the Board of Guardians were present, and took part in the proceedings. It appeared that during the absence of Mr. Adam, the master of Lambeth Workhouse, Mrs. Franks, the matron, did not admit Ann Griffin, not knowing her case to be an urgent one. From the circumstances under which the miserable woman was brought there, this seems possible; but mark, reader, what follows:—

Commissioner: "I have merely to inquire into the conduct of the officers of the Union. I think, however, as the general order from the commissioners is to give relief in all cases of necessity, that the master ought to be examined as to that fact."

Another guardian was aware that relief was ordered in all cases of urgent necessity, but still, if it were generally known that relief was afforded in such cases, the parish would be inundated with them.

The Commissioner knew that the instructions from the Poor Law Commissioners were to that effect; in fact, it was the law of the land.

A discussion then ensued between the guardians as to whether the master should be examined, *some of them fearing that if it were generally known that such cases were admitted a great evil would arise*[*]."

Sir Edmund, however, pressed the examination, and Mr. Adams, being called in, read an extract from the rules of the Poor Law Commissioners, setting forth the modes in which paupers may be received into the workhouse. The first and second are, by order of the Board of Guardians, or by a provisional order, signed by an overseer, churchwarden, or relieving officer; and the third is "*by the master of the workhouse, without any such order, in case of any sudden or urgent necessity.*"

This last is the fatal secret, the "open Sesamé!" to the workhouse doors, which those economic guardians were so unwilling to publish; the rule, it seems, is bearable enough, provided it is kept snug; but once let it be spread abroad, and all the world will rush to enjoy the rich slices of Lambeth bread washed down with those tempting draughts of Thames-water. But let the board be comforted: supposing the rule to be advertised and noised abroad by those odious newspapers, the rush will be equalized, and their parish will only obtain its aliquot part. Or, if we suppose Lambeth to be dangerously attractive, and their splendid oatmeal to bear away the bell from St. Marylebone, St. Pancras, and St. Martin, it will be easy to compensate this *dono infelice di bellezza* by enacting that when one union receives the urgent cases which belong to another, the expense shall be repaid.

Up to the moment of our writing we have not heard of any steps taken by the Commissioners to supply this evident defect in the present practice; perhaps, like the Lambeth Guardians, they are staggered at the "great evil" which would arise, if the poor knew that they need not lie-in in the streets.

Let us now return to Elizabeth Friry.

We observed in our last number, that the investigation held before the Board of Guardians of the Kensington Union, terminated, like the inquest which had preceded it, by a censure on the surgeon and relieving officers of the Union. The Poor Law Commissioners, probably, felt themselves wounded through the sides of their servants; they knew that an Act of Parliament, however harsh in its intent, is but a dead letter; it is the spirit in which it is worked which gives the law its fatal vitality. The Commissioners are naturally desirous to show that the act works well; that it lowers the rates, without starving the poor, and, accordingly, they ordered a third investigation. It took place last Friday, the 20th inst. and was conducted by Dr. Kay, and Sir E. Head, Assistant-Commissioners. It is reported in the Times of Saturday, November 21st.

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[*] Times, Nov. 14, 1840.

Its object was to show that Friry had not died of starvation. The truth is, that in almost every case it is difficult to prove that a person has died from simple starvation, and the difficulty was increased in this instance by the disinterment not having taken place till a fortnight or more after the burial. Dr. Alison, who speaks from experience, assures us that life may be supported for some time on three meals a week. Suppose a woman with some of the infirmities which sixty-five years seldom fail to bring with them, dragging on her existence in this manner for two months, with just food enough to excite appetite rather than to satisfy it, sleeping on the boards, with scanty clothing, deserted by hope and energy; what logician, or what pathologist, shall decide the exact share which each destructive influence had in extinguishing the last spark of life? It is quite clear that Elizabeth Friry was a neglected and ill-used woman; but whether food was more essential to her recovery than a bed, or a bed than food, would be hard to determine; she ought to have had both. Few candid persons, however, would pour out all their anger on the mere instruments in this case, and let their masters go free: when we hear of Egyptian revenues extorted by the scourge, we do not expend our indignation on Hassan and Selim, who wield the rhinoceros skin, so much as on Mehemet Ali, who sets them at work.

Dr. Kay's cross-examination of Mr. Wildbore, the surgeon who performed the post-mortem examination, was ably conducted; though, in truth, such scrupulous doubts would scatter into the air half the supposed facts of morbid anatomy. Elizabeth Friry died of want of food, in Mr. Wildbore's opinion; and he reasonably concludes this to have been the cause of death, from the extreme emaciation of the body, unaccompanied by organic disease. But then the brain was decomposed, and could not be examined; so that it *might* have been affected by an organic disease, which *might* have produced the attenuation. As far as we know, however, organic disease of the brain is rarely attended by extreme emaciation. Only a part of the thoracic aorta was examined—an omission of some importance in a dissection which ought to have been so critically minute.

If an immediate cause of death were sought distinct from the want of sustenance, it might be found in the leg of the deceased, which had swollen to the size of a man's thigh. It burst the night before she died, and discharged a wash-hand basin-full of serum.

As to the frightful destitution of Elizabeth Friry, there is no doubt whatever. The clearest evidence on this point is that of Catherine Ryan, the indigent and benevolent friend who gave Friry shelter, when all society seemed to have conspired against her.

ROYAL COLLEGE OF SURGEONS.

Mr. Lawrence has been elected into the Court of Examiners in place of Sir A. Carlisle; and the vacancy which that gentleman's decease caused in the Council of the College is now filled by Mr. Liston.

PETITION FOR MEDICAL REFORM.

To the Editor of the Medical Gazette.

SIR,

I BEG to forward a copy of a Petition for Medical Reform signed by the medical practitioners of Reading, and intrusted for presentation to the Marquis of Normanby and Serjeant Talfourd. Copies have also been forwarded to Mr. Warburton, and to the members of Parliament for the town and neighbourhood.—I am, sir,

Your obedient servant,
CHARLES COWAN, M.D.

To the Right Honourable the Lords Spiritual and Temporal of the United Kingdom of Great Britain and Ireland, in Parliament assembled.

The petition of the undersigned medical practitioners residing in the Borough of Reading, in the county of Berkshire, and the vicinity thereof,

Humbly sheweth,

That your petitioners have long deplored the evil consequences ensuing not only to their own body, but to the community at large, from the want of an adequate legal constitution for the Medical Profession in Great Britain and Ireland.

That the laws which have been enacted from time to time, for the regulating of medical affairs, and the institutions to which have been committed their direction and management, have been alike insufficient to guard the public health, or to suppress the pernicious practices of ignorant pretenders to medical and surgical-knowledge: that impostors of every description are, consequently, allowed to prey upon society; and empiricism, in its most aggravated forms, is suffered to pursue an uninterrupted and most dangerous career, to the detriment of the public safety and the scandal of a great and civilized empire. Throughout the United Kingdom, any individual is, moreover, at liberty to dispense medicine of every description, and to sell the most deadly poison without supervision or control.

That the Corporate Institutions, which at this time preside over the medical profession, are wholly unequal to the correction of its manifold abuses. Under their existing constitutions, they are incapable of promoting the physical well-being of the people, and are unable either to enforce the examination of candidates for medical practice, or to defend the duly qualified practitioner against an unjust usurpation of his privileges on the part of uneducated and unauthorized competitors.

Your petitioners, therefore, pray, that your Honourable House will adopt such measures as to your wisdom shall appear best calculated to confer upon the medical profession a sound and efficient legal organization, and place it under a system of government, based upon principles which may protect the interests of its members, and promote the public welfare.

And your petitioners, as in duty bound, will ever pray, &c.

QUESTIONS ON MEDICAL REFORM.

To the Editor of the Medical Gazette.

SIR,

THE writer will feel much indebted to any gentleman who will favour him with answers to the following questions:—

Supposing that the friends of transcendental reform had succeeded in obtaining an act of parliament for the formation of a medical council in each of the three metropolitan cities, and a senate in London, of whom would the members sent by the medical commonalty consist? Who would be the presiden tof the senate? What objects would engage the attention of these bodies? What would be the fate of the existing medical corporations? Would the members sent to the councils by the medical commonalty be the calm, the scientific, the experienced in practice, the pure in character? Or would they be those who were the most bustling, most ready in speech, most lavish of promises, most successful in canvassing? Would the chair of the senate be occupied by some man of high talent, distinguished for science and virtue; or by a clever politician who had found the medical profession too narrow a field for his exertions? Would the councillors from medical corporations, and those sent by the commonalty of the profession, cordially unite in promoting the same object, or would they form two opposing forces compensating each other, and causing the machine to stand still? Would the duties of the councils consist in refining on the minutiæ of medical education; in granting licenses to candidates for practice; in composing professional quarrels, and visiting with their displeasure unprofessional conduct; in prosecuting those accused of *malapraxis*, and suppressing quackery? Would the medical councils endeavour to accomplish this last object by encouraging popular lectures on physiology and medicine, and by increasing the requirements for obtaining licenses to practise? Would they ultimately find that by raising high the scale of all medical education, and thus diminishing the number of practitioners in the lower walks of the profession, they had unintentionally delivered over all but the wealthy classes into the hands of druggists and quacks? Under the new regime would the medical corporations remain without performing any active duties, enjoying those funds which some might think far better bestowed on the newly created and energetic bodies; or would they be allowed to continue examining and granting licenses, which, however, should be of no avail without the confirming approval of one of the medical councils? A REFORMER.

MANAGEMENT OF LUNATICS.

To the Editor of the Medical Gazette.

SIR,

I HAVE just been reading the report of the Middlesex magistrates, as published in the *Times*, and have been not a little surprised at the statements therein made in reference to the question of restraint or the non-restraint system in the management of lunacy. Apart from the prevention of mania there can be no subject which demands more searching inquiry than the treatment of the insane; but I cannot help thinking there is much ado about words instead of actions. It may please the fine feelings of sympathy to state to the world in this or that asylum the non-restraint system is followed, but to the practical man it is all sheer nonsense: why send a poor creature away from the endearments of home if such a mild plan of operation would be safe? The question is not whether patients shall be bound by iron, wood, or leather; but it is, how are patients who possess not the rational will, to be *made* to undergo a proper mode of treatment? It is a standard principle in the treatment of lunacy never to threaten without performing; therefore, it is necessary to have power to act, and not to depend upon imperfect means. *Mechanical as well as medical treatment is necessary* in the treatment of mania. Suicide is not the crime to be dreaded in the violent maniac: it is the quiet hypochondriac who requires watching: he is generally artful, and unsuspecting: distress is marked in his countenance, and he feels the indescribable pain of horror which in a moment impels him to the dreadful act; therefore, mechanical restraint is not employed solely for the purpose of preventing self-destruction, but to prevent the patient during a paroxysm of excitement from injuring either himself or another; and also to enable the practitioner to administer medicaments so as to tranquillize the nervous system. It cannot be denied that cruelty has been inflicted on these poor people for the purpose of saving labour and watching. It is no ordinary task to take the charge of a maniac, and, if those who have advocated the self-styled non-restraint system have in any way been the means of increasing the number of attendants on the insane, they have conferred a great boon. It cannot be denied that in some cases it is almost impossible to keep the patient clean, and probably it is the injudicious mode of rendering a patient cleanly that constitutes one of the flagrant defects in the treatment of insanity. There is another cause which too frequently irritates the temper of the keeper, and that is, the resistance on the part of the patient to take food. I have known a patient resist both solids and fluids for five days, and then refuse, to as to render it necessary to compel him so take liquids by pouring them through a funnel down one of the nostrils. Humanity pleads for mildness in the treatment of the insane, but humanity never should interfere with duty.

In conclusion, I would again plead for the necessity of preventing so direful a malady. Let the subject be but better understood by the profession, it would afford us no inconsiderable revenue, and greatly enhance the character of the medical man.

I remain,
Yours most respectfully,
JOHN GRANTHAM.

Crayford, Kent,
Nov. 16, 1840.

AXIOMS FOR THE DEAF.

To the Editor of the Medical Gazette.

SIR,

I WAS in the act of sketching out the following axioms for the deaf, when the current number of your meritorious periodical was placed before me. By a singular coincidence it contains a communication strikingly illustrative of the importance of more than one of those axioms. The idea instantly occurred to me to forward them to you. To remove existing errors in the *professional and domestic* treatment of deafness is one of the leading objects of my life; and, with the hope of your co-operation in the present instance, I have the honour to subscribe myself

Your obedient servant,
JAS. YEARSLEY.

29, Sackville Street,
Nov. 21, 1840.

1. Never syringe your ears, nor allow it to be done by others, unless for the removal of an accumulation of wax.

2. Be sure that such accumulation forms an obstacle to the transmission of sound, otherwise it had better remain where it is, for it should always be borne in mind, that the wax is a natural secretion placed in the passage of the ear for a specific purpose. Its presence, in moderate quantity, indicates a healthy condition of the outer passages of the ear. Its absence is the effect, and not, as is generally supposed, the cause of the disease which produces the deafness. Like deafness, want of wax is only a symptom of ear disease; hence the absurdity of attempt-

ing its restoration by stimulating drops and ointments.

3. Never pick the ears.

4. Never wet the hair, nor wash the head with cold water. A most pernicious practice!

5. Never bathe, nor use a shower-bath, without protecting the head and ears. Even then I question its propriety.

5. Never attempt to stop a discharge from the ears but under proper advice; for it may be that the drum of your ear is open, and then, the employment of a stimulating or astringent injection will risk even fatal consequences.

7. Never apply, nor suffer to be applied, any thing to the outer passages of the ears, which causes heat or pain. Such applications may prove of temporary benefit, but when the stimulus has subsided you will be left worse than before.

8. Be strict in diet. Stomach derangements are a prolific source of deafness.

9. Never expose yourselves to wet or windy weather.

10. Never consult an aurist who is not an educated and diplomatised surgeon, and who does not admit that deafness is an infirmity often difficult of removal, and often, very often, incurable.

ABERDEEN INFIRMARY.

CASE OF STRANGULATED HERNIA.

A. R., thirty-one years of age, a sailor, was admitted on the 9th of August, 1839, with symptoms of strangulated hernia. He has had inguinal hernia of the left side for two years, but never wore a truss. The rupture often came down while he was working, but he was able to return it himself by lying down on his back; and experienced little inconvenience from it till of late, when it has never been completely reduced. He suffered a severe fall about three o'clock yesterday afternoon, and a piece of wood struck the tumor, which immediately came down to a very large size. He was obliged to be carried home, and passed a night of great suffering, from twisting pain round the navel, and in the tumor. Vomiting came on early this morning, and he was brought to the hospital at half-past eleven o'clock. Pulse now 108, full and strong; tongue foul, but moist; frequent retching, and bilious vomiting. Bowels not moved since yesterday morning: much pain and tenderness of the abdomen on pressure. The taxis was perseveringly tried, but without success; the bulk of the tumor seeming to be partially diminished at first, but obstinately resisting further reduction. He was then put into the warm bath, and while there thirty-two ounces of blood were abstracted from a large orifice. During the faintness thus produced the taxis was again tried, but in vain. He was then removed to bed, and a bladder filled with pounded ice was applied to the tumor. A purgative enema was ordered to be immediately injected, and if it should have no effect, a turpentine enema two or three hours after.

8 P.M. No effect from the injections. Vomiting and pain of abdomen continue, with much tenderness and tension: pulse 108; tongue dry. A consultation being held, immedate operation was agreed on; but to this the patient positively refused to submit till he should see his friends, who lived at a considerable distance. An express was accordingly sent for them, but in the meantime it was resolved to try the tobacco enema. One dram of tobacco was therefore infused in a pound of water, and one-half immediately thrown up. As this produced little effect, at the end of half an hour the remainder was injected. This produced slight faintness, and the pulse became more feeble; but the injection came off without any fæculent matter.

August 10th.—7 A.M. Has passed a restless night, with frequent vomiting, and occasional slumbering; pulse 110; abdomen tense and tender, and the tumor hot and painful. The operation being still thought admissible, and the patient consenting to it at the advice of his friends, I proceeded to perform it immediately. The several tissues were found remarkably distinct, not being so much agglutinated by adhesion as they are often found to be. On opening the hernial sac a considerable quantity of fluid escaped. The sac was found to contain a large quantity of intestine, much distended, but no omentum. The coats of the intestine were much congested, and of a dark brownish red colour, with some patches of a brighter red. The external ring was found to admit with little difficulty the point of the finger. It was, however, slightly dilated upwards, by the bistoury introduced on the finger, after which the finger passed readily into the abdomen. Reduction was then commenced, and went on easily for a short time; but the gut in the lower part of the tumor was found to be very tense, and its contents could not be pressed up. On examination, a ligamentous band was found attached to the mesentery, and tightly surrounding a turn of the intestine five or six inches in length, which was very tense, and of a darker colour than the rest. The point of the little finger was with difficulty inserted between it and the gut, and the band was divided by a narrow bistoury. The whole of the intestine was then gradually returned, and the operation was concluded in the usual manner; the integuments being brought together by two stitches, and by adhesive straps. An injection was ordered on his removal to bed, and at 10 o'clock six drams of castor oil were administered.

2 P.M. He has had several very copious fæculent stools; vomiting has ceased; pulse 102. He is ordered to take, every two hours, two ounces of infusion of senna with cream of tartar.

8 P.M. Complains of considerable pain and tenderness of the abdomen; skin hot; pulse 112. He was therefore bled to twenty ounces, and a pill of five grains of calomel and one grain of opium ordered, to be followed in the morning by the infusion of senna as before..

August 11th.—He has had several very copious motions; pain and tenderness of abdomen much diminished; pulse 96. From this time he went on in the most favourable manner. The bowels were kept open by castor oil and the infusion of senna alternately. A considerable part of the wound united by the first intention, and the remainder granulated favourably. The cure, however, was retarded by the wound assuming an inflamed and irritable appearance about the twelfth day, followed by partial absorption of the granulations. This seemed to be owing to the state of the air, as erysipelas and sloughing phagedæna were prevalent in the hospital at the time. Poultices and water dressings were ordered, with nourishing diet, four ounces of wine daily, and one grain of opium at night. Under this treatment the sore gradually improved, and on the second of September had again begun to cicatrize. On the twentieth it had completely healed. He was dismissed a short time after, with orders to wear a truss to prevent a return of the hernia. He has since performed several voyages, and returned well.

This case suggests a few observations. The stricture seemed to be formed solely by the ligamentous band, the external ring being wide enough to have admitted of the return of the intestine, if it could have been completely emptied of its contents. The manner in which this band was formed can only be a matter of conjecture, but it seems probable that it was at first merely an adhesion between two neighbouring points of the mesentery, by effusion of coagulable lymph, which had gradually been elongated, and then a loop of the gut had passed through it, and been arrested there. At what period this happened is uncertain; but it may probably have occurred at the time when the hernia first became irreducible. At all events it must have existed for a considerable time, as the part of the intestine embraced by the band was evidently narrower than the rest, and also of a whiter colour and firmer texture. The most important circumstance in this case, however, is its bearing on the question so much discussed, of the propriety of returning the hernial sac unopened. If this had been done in the present instance, which probably might have been accomplished by dilating the ring a little more, the intestine would still have been in a state of strangulation, and the patient must have died in a few hours.

CASE OF FUNGOUS CARCINOMA.

M. A., ætat. 30, mother of a family, admitted May 27th, 1839. About eight years ago she first observed a small tumor near the temporal ridge of the frontal bone, which ulcerated, and bled freely when it received any injury. It has been often touched with caustic, but continued gradually to increase. Within the last six months its increase has been much more rapid. It is now about the size of the half of a very large orange, but somewhat oval in shape, being three inches long by two and a half broad. Its surface is irregular, red, ulcerated, and of a cauliflower-like appearance; its texture firm, and somewhat warty, and it discharges a large quantity of sanies. She complains of a burning sensation, with occasional darting pains in it; health good, except incidental headaches. On account of its large size, broad base, and close connexion with the cranium, it was considered very unfit for excision by the knife. It was therefore determined to attempt its removal by chloride of zinc.

On the 3d of June a layer of paste, formed of one part of chloride of zinc to three of flour, and about the thickness of a crown-piece, was applied to the most prominent part of the tumor, so as completely to cover more than one-half of it. It produced considerable burning pain, but a dose of T. Opii rendered it quite tolerable. At the end of four hours the paste was removed, and a poultice applied.

On the 5th a large white eschar was found to be formed, and beginning to separate, with little surrounding inflammation; and both the bulk and pain of the tumor were much diminished. A similar layer of paste was applied to the remaining part of the tumor.

12th.—Some portions of the tumor, which had escaped the action of the chloride, have been successively covered with the paste. The sloughs are not yet wholly separated, but the tumor is much reduced in size, and the pain almost gone.

June 17th.—The whole tumor seems to be destroyed, except two or three small overhanging edges, which appear to have been protected by the integuments. One of these was removed by the curved scissars, and the rest touched by potassa fusa. The granulations look healthy.

26th.—All the sloughs are now separated; the granulations are healthy, and cicatrization is proceeding regularly from the circumference towards the centre. The sore is occasionally touched with nitrate of silver.

July 4th.—Cicatrization advancing; but, as some of the granulations appeared rather unhealthy, they were destroyed by the paste.

13th.—More than three-fourths of the sore are now firmly cicatrized; and the remainder looks healthy, and level with the surrounding integuments.

August 3d.—The sore has now been completely healed for several days, and the cicatrix is level and quite natural.

A case in many respects resembling the above, which occurred at the Hôpital de la Pitié, in Paris, is related in the Gazette des Hôpitaux, 23 Fevrier, 1840. It is called by M. Lisfranc "Tumeur carcinomateuse, avec ulceration phagedénique." Aware of the disadvantages of excision in such cases, on account of the difficulty of obtaining a cicatrix without great deformity, from the deficiency of cellular tissue, and the habitual state of tension of the integuments, M. Lisfranc adopted "a mixed method of treatment," consisting of repeated cauterization alternating with the application of leeches, with the view of destroying the diseased parts, and at the same time favourably modifying the action of the surrounding tissues, and this treatment was "crowned with the most brilliant success." In the case of M. A. the chloride of zinc seemed to fulfil both these intentions; entirely eradicating the diseased parts, and exciting in the surrounding tissues only such a degree of inflammation as contributed to the formation of healthy granulations, and the filling up and cicatrization of the wound. In cases of this kind the chloride of zinc seems to me to possess great advantages over all other escharotics, even arsenic itself, in the facility with which its action can be limited to the diseased tissues, and the very favourable modification which it produces in the action of the surrounding parts; ulcers produced by it healing in a shorter time than those produced by any other means. This I have repeatedly exemplified in carcinoma of the integuments of the face; which, when situated where the wound cannot be drawn together by stitches, is very unfavourable for the operation of excision, but which I have in many instances succeeded in curing completely, and with very little deformity, by the use of this escharotic.

ON OPHTHALMIA NEONATORUM.

By Dr. P. G. Cederschjöld.

In order to ascertain whether the purulent ophthalmia of new-born infants is caused by a discharge from the genitals of the mother, which affects the eyes of the child during birth, Dr. Cederschjöld had the question put to every woman delivered during the year 1832 in the general lying-in hospital at Stockholm, whether or not she had such a discharge. Three hundred and sixty women were delivered; and subtracting those who bore dead children, or whose children died a few days after birth, there remained 328. Of these, 137 had a discharge from the genitals, and 181 had not. Thirty infants had purulent ophthalmia; namely, 20, whose mothers had a discharge, and 10, whose mothers had none. Hence it appears that discharges from the genitals are extremely common among pregnant women; that women may be afflicted with them, without giving their offspring ophthalmia purulenta; and that children may have the disease, though the mothers have no discharge; a proof that the malady may arise from other causes. But when we consider that of the children born of mothers affected with a discharge, 20 in 137, or about 1 in 6 [more nearly 1 in 7], suffered from the ophthalmia; while only 10 in 181, or about 1 in 18, of those whose mothers were unaffected, had the ophthalmia, and that, therefore, the proportion of the former was [nearly] three times as great as of the latter, we may assume, *that a discharge from the genitals of the mother, though not the sole cause of this disease, is a very frequent one.*—*Zeitschrift für die gesammte Medicin*, from a Swedish work.

PURE TANNIN A REMEDY FOR EXCESSIVE PERSPIRATION.

By Dr. Charvet.

Sweating is a morbid symptom which is often so serious and inconvenient, that the practitioner is obliged to combat it by special remedies. The acetate of lead, which has been extolled of late years, sometimes causes inconveniences which hinder many practitioners from employing it in cases where its use seems clearly indicated. Pure tannin, employed as an anti-sudorific, appears to be free from these disadvantages. The author has employed it for two years at the hospital, and in his private practice, and though it has not succeeded in every case, it has in almost all.

He prescribes it in the form of pill, and in the dose of from two and a half to ten centigrammes (half a grain to two grains) in twenty-four hours, generally in the evening, with or without opium, which neither checks nor favours its action. The first time he administered it was in the case of a phthisical patient, who was already in a state of marasmus, and whose cough, fever, and oppressed breathing, were less troublesome than the general perspiration with which he was inundated every night. The patient asked for some medicine against the perspiration, which he considered the sole cause of his sufferings, and was ordered twenty-seven milligrammes (about three-fifths of a grain) of tannin. The next morning he said he had passed a good night, and hardly felt moist when he awoke. The repetition of the the same dose every evening was sufficient, during several weeks, to suppress the perspirations entirely; but they returned as soon as the medicine was omitted. The dose was raised to five centigrammes (a grain), and then to eight (1 grain three-fifths), and always with the same success. The author relates several other cases in support of the antisudorific property which he attributes to tannin; they occurred among consumptive patients who had arrived at the last stage of the disease. They are additional examples of the activity with which tannin suppresses sweating, even when the disease from which it arises is beyond the resources of our art. —*L'Expérience*, and *Gazette Médicale*.

REMARKABLE CASE OF TAPE-WORM.

Madame R., aged 37, of fair complexion, and robust constitution, and generally in good health, had experienced, for seven or eight months, a general uneasiness, with a feeling of oppression and weight in the abdomen, principally about the epigastrium. More than once her abdomen became large suddenly.

She commonly had a disgust for food; but sometimes, on the other hand, she was tormented by a voracious appetite, recurring irregularly, and by frequent nausea, without vomiting. Her tongue was white and large, her mouth bitter and pasty. As the patient expressed it, it often seemed as if something pricked or tore her stomach; and she pointed out the epigastrium as the only seat of these very painful sensations. When the patient ran, she felt a substance move up and down in the same region, which she compared to a bladder filled with fluid. There was frequent diarrhœa, and the patient was, at two different times, attacked with very violent convulsions during the night, together with complete loss of consciousness. During the fits, which lasted more than an hour each time, the husband of the patient had great difficulty in holding her; she then fell asleep, and the next morning had no recollection of what had passed.

Mad. R. being requested to examine her stools with attention, in a few days brought a fragment of tape-worm, which she had just passed. The next day she was ordered to take 60 grammes (1200 grains) of the root-bark of pomegranate, in the form of decoction. An hour after taking the first glassful, she suddenly, and at once, passed a considerable mass of tape-worms in a cluster. They were twelve in number, and their length extended to 48 metres.

Since then, all the symptoms which Madame R. experienced have completely disappeared. Her first care was to ascertain whether the motion of the epigastric region which she had formerly felt when running was still perceptible; but to her great surprise she felt nothing of the kind.—*Archives Générales*, and *Gazette Medicale.*

ON THE LYMPHATICS OF THE BRAIN.

By F. Arnold.

In his researches on the structure of the brain and spinal cord, and in his Icones Anatomicæ, the author has published the first complete description of the absorbents of the brain. In the dura mater, veins only were for the most part filled by the injection, but he obtained very successful mercurial injections of the absorbents of the pia mater. He distinguishes three different networks: 1st, A superficial delicate one, whose vessels are one-sixth of a line in diameter, and whose meshes are extraordinarily minute, lying in the cellular tissue which connects the arachnoid with the pia mater; 2d, A deeper and coarser network also in the subserous tissue of the arachnoid, and composed of vessels with a diameter of one-fourth of a line; 3d, A still coarser network, with vessels one-half of a line in diameter, and with such narrow interspaces, that when they are filled the brain seems completely covered by the injection. This network, however, is contained in the pia mater, and passes with its plexus into the depths of the furrows between the convolutions. The trunks of the absorbents into which these networks are continued take the course of the veins on the surface of the brain, accompany them closely, and pass with them and with the arteries through the foramina in the skull. In the choroid plexuses of the lateral and third ventricles there are lymphatic networks and small trunks, which collect into one considerable trunk, accompanying the vena magna Galeni. The absorbents of the very substance of the brain, which probably go with its small veins, could not be filled: they always gave way just on the walls of the ventricles. At present also the attempts to inject the absorbents of the spinal cord have had no success.

SPANISH CHOCOLATE.

The following, according to Mr. Inglis, is the composition of Spanish chocolate:—

"To six pounds of the nut, are added three pounds and a half of sugar; seven pods of vanillas; one pound and a half of Indian corn; half a pound of cinnamon; and a small quantity of musk."—*Rambles in the Footsteps of Don Quixote*, p. 71, note.

CASE OF FATAL HÆMORRHAGE IN AN INFANT.

By Dr. Evert.

The patient was of the male sex, and eight days old; its mother had been cured of the venereal disease two years before. The child was weak when born, and its arms and legs were affected with a spotty eruption. On the 15th of April, Dr. Evert remarked a small aperture on the under lip, from which blood trickled forth. On the following day, there was very considerable hæmorrhage from the same lip, the navel, and the scrotum. On the 18th, the bleeding from the lip returned. The blood then exuded through the skin, just like the lymph which exudes when the skin is superficially abraded, and it collected in drops upon it. The child died on the 20th.—*Zeitschrift für die gesammte Medicin*, from a Swedish work.

TESTS FOR DRUGS.

Croton oil.—When agitated with its own volume of pure alcohol, and gently heated, it separates, on standing, without having undergone any apparent diminution.

Elaterium [the Extract].—Colour, pale gray: when exhausted by rectified spirit, the solution, concentrated, and poured into hot diluted aqua potassæ, deposits, on cooling, minute, silky, colourless crystals, weighing at least a seventh of the elaterium.

Guaiac [the Resin].—Fresh fracture red, passing to green: the tincture slowly strikes a lively blue colour on the inner surface of a thin paring of a raw potato.

Opium.—A solution from 100 grains macerated 24 hours in two fluid ounces of water, filtered, and strongly squeezed in a cloth, if precipitated by a cold solution of half an ounce of carbonate of soda, in two waters, and heated till the precipitate shrinks and fuses, will yield a solid mass on cooling, which weighs, when dry, at least 11 grains, and if pulverized, dissolves entirely in solution of oxalic acid.

Castor oil.—It is entirely dissolved by its own weight of alcohol.—*Edinburgh Pharmacopœia*, 1839.

[For other tests from the same source, see Medical Gazette, vol. xxiv. p. 932-3.]

RELIEF OF DEAFNESS.

Derham remarks in his Physico-Theology, that the deaf hear best amidst a noise; for instance, a man hard of hearing heard best when the bells were ringing, and a deaf landlady when the servant was beating a drum.

Hence it is, that as princes and ministers are generally hard of hearing, a noise is made with music, kettle drums, and cannon, when they pass through a place, in order that they may hear the people better.—*Jean Paul Richter.*

ECONOMY IN LEECHES.

If the hinder part of a leech be cut off before it is applied, it will usually remain on for several hours, the blood constantly dripping away from the wound (like the water from Munchausen's horse). A leech thus treated will suck as much as four others, if too much of the tail have been not taken off, and if the operation be not performed with blunt scissars.—*Dr. Butge*, in *Med. Correspondenzblatt.*—Bd. 9. No. 31.

RECEIVED FOR REVIEW.

Dr. C. J. B. Williams on the Pathology and Diagnosis of Diseases of the Chest.

Mr. Thornhill on the Physical Effects of Intemperance.

Mr. Frankum's Discourse on the Enlarged and Pendulous Belly, &c.

APOTHECARIES' HALL.

LIST OF GENTLEMEN WHO HAVE RECEIVED CERTIFICATES.

Thursday, November 12, 1840.

R. T. H. Bartley, Bristol.—P. Porter, Cornwall.—E. Parker, Liverpool.

November 19, 1840.

Thomas Awbrey Essery, Swansea, Glamorganshire.—Robert Frederick Browne, Knightsbridge.—Benjamin Blaine, Hull.—James Winckworth.—Edward Jeffery, Great Yarmouth.—Thomas Damant.—William Blades, Sedburgh, Yorkshire.—George Frederick Blacker, Midsomer, Norton, Somerset.—William Augustus Raper, Horsham, Sussex.—William James Salmon.—Thomas Handford, Banstead, Surrey.—James Teevan.

METEOROLOGICAL JOURNAL.

Kept at Edmonton, *Latitude* 51° 37 32″ *N.*
Longitude 0° 3 51″ *W. of Greenwich.*

Nov.	Thermometer.		Barometer.	
Wednesday 18	from 34	to 40	29·73	to 29·60
Thursday . 19	32	44	29·68	29·65
Friday . . 20	25	42	29·98	30·00
Saturday . 21	34	44	29·50	29·26
Sunday . . 22	35	41	29·68	29·94
Monday . . 23	29	47	29·97	29·94
Tuesday . 24	30	55	30·01	30·09

Wind N.E. on the 18th; North on the 20th; S.W. on the 21st; N.W. on the 22d; on the 23d, S.W. in the morning, and West in the afternoon; N.W. and N.E. on the 24th.

On the 18th cloudy, snowing nearly all the afternoon, flakes remarkably large, rain in the evening; the 19th, morning cloudy, with rain, otherwise clear; the 20th clear; the 21st generally cloudy, with frequent showers; the 22d clear; the 23d general overcast, rain in the morning; the 24th generally clear.

Rain fallen 1 inch, and ·025 of an inch.

Charles Henry Adams.

Notice.—Numerous communications are unavoidably postponed.

Wilson & Ogilvy, 57, Skinner Street, London.

THE
LONDON MEDICAL GAZETTE,
BEING A
WEEKLY JOURNAL
OF
Medicine and the Collateral Sciences.

FRIDAY, DECEMBER 4, 1840.

LECTURES ON THE PRINCIPLES AND PRACTICE OF PHYSIC,

Delivered at King's College, London,

By Dr. Watson.

Lecture XI.

Mortification, as an event of inflammation. Inflammatory fever. Hectic Fever. Typhoid Fever. Modification of inflammation by differences of tissue: Cellular tissue; substance of glands and solid viscera; serous membranes; synovial membranes; tegumentary membranes—skin — mucous membranes; muscular tissue; arteries; veins: substance of the brain.

We were occupied, when last we met, with what may properly be called the *events of inflammation.* We passed in review, 1st, *resolution* as an event of inflammation; 2ndly, *serous effusion;* 3rdly, the pouring out of *coagulable lymph,* constituting the adhesive form or stage of inflammation; 4thly, the formation of *pus,* or *suppuration;* and 5thly, *ulceration.* The pathology of these several events, so far as it is understood, and the change of symptoms to which they may respectively lead, were also treated of as fully as the limits of my course allow. At the close of the lecture I was about to speak of the sixth and last event of inflammation that requires to be noticed; viz. *gangrene, sphacelus, mortification.*

Mortification.—When mortification thus succeeds to inflammation, the part dies; it becomes cold; all circulation through it is at an end; all sensation in it is over. If it be an external part, its colour changes: from being red it becomes mottled, purplish, green, or black; decomposition takes place; vesications appear, filled with dark-coloured fluids; air is extricated also. If there be a great accumulation of fluid in the part there will still remain tension; but usually the mortified part is flaccid and boggy; and it emits a cadaverous smell.

When *internal* parts mortify under inflammation, they do not always assume this black appearance: often they are yellowish; or the soft tissue of the dead part readily imbibes fluid, and takes the colour of the substances with which it has been in contact. We see sloughs of the mucous membrane of the intestines presenting the ochery hue of the fæcal matters which had rested upon them.

What I have described as mortification, occurring externally, and succeeding to inflammation, is such as the surgeon witnesses. Sometimes it spreads, and loses and confounds itself, insensibly, with the adjoining parts, which still retain life; and which may continue actively inflamed; and subsequently perish also. Under more favourable circumstances, a distinct boundary line is formed between the dead and the living parts; and nature proceeds to amputate the portion which has lost its vitality. The process by which this is effected is extremely interesting: adhesive inflammation constructs a barrier of lymph against any farther advance of the mortification; a furrow of ulceration marks out upon the surface the commencing separation, and (supposing a part of one limb to have become gangrenous, the foot for example) the furrow gradually deepens, until the dead part is completely cut off. This very fact shows that all the textures of the body, skin, muscle, nerve, blood-vessel, and bone, are capable of being removed by the ulcerative process. Meanwhile very interesting changes occur in the part that lives: the large vessels are plugged up, to a certain distance, by the coagulation of the blood contained in them; the coagulation of the blood following its stagnation. They are farther sealed up, and the smaller vessels also are closed, by coagulable lymph. Were it not for these changes, fatal hæmorrhage would follow the separation of the dead part. Now this is just what a surgeon rudely imitates when he amputates a limb; he cuts through the parts with knife and saw, and he ties the larger blood-vessels as he goes along. He follows the path which the natural processes point out: and in truth, a great part of both physic and surgery consists in learning what are the expedients of repair and preservation for which provision has been made in the living body; in exciting, or repressing, or directing, or imitating, those natural actions which generally tend, and often suffice, to restore health, and to save life.

Mortification is more common in some internal parts than in others. It is frequent in the cellular tissue; and in the mucous and submucous tissues of the alimentary canal; in the throat, for example, in cynanche maligna; and in the glandular parts of the intestines in fever. It seldom affects the other mucous systems—those which belong to the air-passages and the urinary organs. It occurs sometimes—but not very often—in the substance of the lungs. It is seldom met with in serous and fibrous tissues. It is not at all uncommon in bone; producing *exfoliation* when it is slight and superficial; *necrosis* when the entire shaft of a long bone dies. In these cases the process is slow, and we can watch its repair; and a beautiful process it is: but I must not stop even to admire it.

Now mortification is no certain or constant event of inflammation. It depends, more or less, upon various causes and conditions. Sometimes upon the mere intensity of the inflammation, as in sloughing inflammation of the genitals: the progress of the mortification being fast checked by those measures which are calculated to abate the violence of the inflammation. The sloughing of the cornea in gonorrhœal ophthalmia is another example to the same purpose.

Again, whatever tends to weaken the circulation in the part affected—or in the system at large—tends also to promote the perishing of the textures that are inflamed. In persons who are debilitated by fever, the mere pressure of the body against the bed is enough to produce sloughing of the integuments of the sacrum, hips, and elbows. The same phænomena are apt to occur in parts that are palsied. In dropsical patients, with feeble and impeded circulation, we find that a blister on the extremities, where the circulation is the *most* feeble, will sometimes cause mortification; while it might be applied to the chest without any risk of that event. Probably, in each of these instances, the unhealthy condition of the blood conduces to the sloughing process. Inflammation of the stomach and intestines is marked by a strong disposition to run into gangrene—and this again is consistent with what I formerly mentioned, of the depressing influence of inflammation of these organs upon the heart.

It is necessary to remember that mortification is capable of being produced by other causes, as well as by inflammation. The death of frost-bitten parts is perhaps scarcely an exception—the phænomena of mortification occur in them after the reapplication of a certain degree of heat—sufficient, probably, to give rise to more action than the frozen parts can bear without perishing. But the mere cutting off the supply of arterial blood, independently of any inflammation, will cause mortification. Ossification of the arterial trunks, and consequent stagnation and coagulation of the blood in them, is the commonest cause of the dry gangrene of old persons—the *gangrena senilis;* which, by the way, is not always dry. In the majority, however, of these cases, the gangrenous part, not being preternaturally loaded with fluid, does not so rapidly putrefy; but remains dry, and shrinks up. Again, whatever tends to prevent the return of the venous blood from a part (as a firm ligature placed round a limb—or the constriction of the gut in strangulated hernia) is favourable also to the production of mortification. Probably here too the direct or indirect pressure made upon the arteries is chiefly concerned in occasioning the death of the part. We see limbs mortify sometimes after their principal artery has been tied for the cure of aneurism, when the collateral arterial circulation fails sufficiently to re-establish itself: we see the same thing when the passage of the blood through the main artery is stopped by external injuries.

There is also a very curious form of chronic and dry gangrene produced by the continued use of diseased grain as food—and particularly of the spurred rye: and to this, as a distinct disease, I may perhaps have occasion to direct your attention hereafter.

The different stages and events of inflammation that have now been described are accompanied by corresponding disturbances of the system at large. These were touched upon (barely mentioned, however) in that rough and general outline which I attempted to sketch in the outset, of the various phænomena of inflammation; and to which I have since referred as a type. They require, for many reasons, to be considered somewhat more minutely.

When, as *surgeons*, you have to deal with *external* inflammation, you have no difficulty, in the first place, in ascertaining its actual existence: you see it; and you know besides, merely by looking at the part, and perhaps handling it, what changes it has undergone. You may perceive that the opposite lips of a wound have adhered; or that a phlegmon, in which you can also distinguish fluctuation, has assumed a pyramidal form, and begins to look white upon its summit: or you observe that the abscess has broken, and left an ulcer behind it, which pours out pus, and which shows a tendency to contract, or to enlarge itself: or you may remark the alteration of colour and of temperature which denotes the approach of mortification, or the actual death of the part. The mere exercise of your external senses apprises you, not merely that there is inflammation, but also whether it is of the *adhesive* kind; or has reached the degree of *suppuration*; or has produced *gangrene*. At the same time you do not fail to notice the nature of the *constitutional* disturbance that may be present; and the knowledge thus obtained of the local and of the general symptoms determines your plan of treatment.

But when, as *physicians*, we have to do with inflammations of *internal* parts of the body, and when the changes attendant upon that process are concealed from our view, the case is very different. We should often be unable to make out the nature of the disease at all, if the presence of pyrexia did not instruct us. Sometimes the constitutional disturbance is all that is apparent, until after death. And, as the disease proceeds, we frequently are able to judge that this or that *event* of inflammation has taken place, only by observing the indirect symptoms which declare themselves through the medium of the system at large. Yet it is in many cases of the greatest importance to mark the transition from one stage or event of inflammation to another; and to learn whether, and in what degree, the more urgent of the symptoms depend upon the inflammation itself; or upon the effects which it has produced. I do not mean to say that we have not, sometimes, as sure indications afforded us by *direct* symptoms, cognizable by the sense of hearing or of touch, of the state of internal organs, as we *could* have if they were exposed to our view. To these direct symptoms I am not now about to refer; they must be spoken of in connexion with the diseases to which they belong. But the information which the physician gains from what may be called *constitutional* symptoms is *always* highly valuable; and it is *sometimes* the *only* information that offers any guidance to the remedial measures he ought to adopt.

Inflammatory Fever.—Inflammation, sufficiently extensive or intense to disturb the general system at all, is attended with pyrexia: and the presence of pyrexia, when the part affected is unseen, marks the *nature* of the disease. The most prominent of the symptoms that denote the existence of inflammatory fever are debility and chilliness; followed by, or alternating with, increased heat of skin; and increased frequency and force, and often *hardness* of the pulse; with considerable derangement of most of the natural functions of the body. Commonly there is headache and confusion of thought, languor, thirst, loss of appetite, a furred or white tongue.

Among these leading symptoms, the chilliness, often amounting to shivering, has this particular importance attached to it, that it marks the *date* of the febrile disturbance. And it is worth observing, that rigors more commonly attend the commencement of spontaneous inflammation than of inflammation caused by external injury.

Now, without going more into detail—of this febrile condition belonging to the early stage of inflammation, I make the following remarks.

1. That it generally *succeeds* the manifestation of the local symptoms of the inflammation: and that we cannot, therefore, help considering the fever as the natural *effect* of the inflammation.

Kaltenbrunner describes an experiment of this kind. He says, if a drop of alcohol be applied to the web of a frog's foot, the blood presently flows towards the part irritated, and the circulation in it is accelerated; *congestion* takes place, and follows its known march.

If the dose of alcohol be augmented, the phænomena of congestion increase considerably, and extend over a larger space: at length points of stagnation appearing in the focus of the affected part announce the establishment of *inflammation*.

If the dose of alcohol be still farther increased, we observe that, on the one hand, the inflammatory points of stagnation become larger and more numerous; and that, on the other, the circumferential disturbances of the circulation extend themselves, so as at length to implicate the whole of the circulating system: they give rise to a *fever*, which is *added* to the *inflammation*. The circulation in the web of the opposite foot is as much accelerated as in the vessels surrounding the inflamed part in the first foot. If the word congestion had not a local meaning, we might call fever (he says) a general congestion.

Perhaps the fever may be owing to the circulation of altered blood throughout the body. We know that the blood *is* altered in these cases, inasmuch as it is found to contain an unusually large proportion of fibrin; and as it has acquired the unnatural quality whereby, when withdrawn from the body, and allowed to coagulate, it exhibits the buffy coat.

That the febrile state follows the local inflammation in point of time, is then the rule: but this rule has frequent exceptions. Erysipelas, and all the febrile exanthemata, afford instances of exception; the fever sets in before any manifestation at least of the local symptoms. These are indeed diseases of a specific kind: but the same is true sometimes of diseases that appear to be simply inflammatory; such as inflammation of the lungs, and cynanche tonsillaris. There are other cases in which the local symptoms and the general febrile disturbance appear to burst forth simultaneously: this is seen in certain instances of pleurisy, and of peritonitis.

2. Again, it is a curious circumstance that the inflammatory fever is not always proportioned, in its degree of violence, to either the size or the importance of the part inflamed. The pyrexia is often very strongly marked in that common complaint, the quinsy, inflammatory sore-throat, cynanche tonsillaris—which can scarcely ever be said to imply much danger.

3. The situation, the extent, and the degree, of the local inflammation being the same, the fever commonly runs higher in young, and in plethoric persons, and in those of sanguine temperament, than under the opposite conditions.

4. The inflammatory fever may be modified in the outset, or very early indeed, by the nature of the part upon which the inflammation has seized. I have several times mentioned the peculiar depressing effect upon the action of the heart produced by inflammation of the stomach and bowels, and of some other of the abdominal organs; and particularly by inflammation involving their peritoneal covering. This lowering influence (which is analogous to that of certain mechanical injuries to the abdomen) has been supposed to depend upon the subduing and sickening kind of pain which is apt to accompany inflammation of these parts. However it may arise, it gives a peculiar character to the inflammatory fever; lessens the amount of reaction, or abridges its duration; affects especially the quality of the pulse; and carries with it a strong tendency towards death by asthenia.

5. There is no doubt either that the character of the inflammatory fever is liable to be considerably modified, from the first, by the previous habits of the patient. In persons who have been habitually intemperate—or who have been subject to long-continued excitement of the nervous system of any kind—the fever which attends inflammation approaches more or less to the typhoid form, from the very beginning. The febrile reaction is less strongly pronounced. The functions of animal life are sooner and more deeply involved in the train of morbid actions. Stupor and delirium are apt to occur; with extreme debility and irregular movements of the voluntary muscles. Still more conspicuous are these peculiarities in some cases of inflamed veins; and whenever inflammation is produced or accompanied by the introduction into the system of certain animal poisons.

6. The relative duration of the inflammatory fever is subject to some variety. It may persist for a little while, for a few days even, after all the local signs of inflammation have disappeared: this happens chiefly in persons of an irritable habit. We watch such cases narrowly, not without some apprehension of a relapse. On the other hand, a rapid abatement of the febrile symptoms sometimes takes place, while the local changes continue, or even for a time increase in extent. Nevertheless, we hail this change as a favourable augury of the ultimate result.

Hectic fever.—When inflammation, external or internal, has gone on to the formation of pus, *that* event is frequently marked by the supervention of peculiar symptoms, and the character of the fever undergoes, for the most part, a striking alteration.

It is very important to ascertain the time when this event of inflammation takes place, or is at hand: for the measures which might have been proper and necessary while any prospect remained of the *resolution* of the inflammation, may be useless, and even hurtful, if continued after that prospect is at an end.

When the surgeon perceives any indication of the formation of pus in an external part, he mostly despairs of being able to bring about resolution; ceases to abstract blood from the part, or from the system; and applies perhaps warmth and moisture, by means of a linseed poultice, to promote the suppuration. And a corresponding change of plan is required in internal inflammations.

Now the *commencement* of suppuration is often marked by rigors; and its *continuance* by hectic fever.

If, after the symptoms of inflammation have lasted for a certain time, the patient is attacked by cold shiverings, followed by some increase of heat, that circumstance alone is enough to make us suspect that pus is formed, or is about to be formed: and to teach us that the measures employed to effect a resolution of the inflammation have not been successful.

Rigors are very striking symptoms; but they are by no means necessarily connected with suppuration. They usher in, as I presume you know, most forms of fever, appearing at the very outset of the disease. They recur, at regular intervals, in ague. Slight causes will, sometimes, produce them. They often follow the introduction of a bougie into the urethra. But when they occur *after symptoms of internal inflammation have been for some time present*, they denote, in most cases, the production of pus in the part or organ inflamed. Sometimes one such shaking fit only is observed: sometimes several take place. When they recur, it is usually at irregular intervals: but cases do happen in which the shiverings indicative of internal suppuration are so strictly periodic, that unless all the circumstances be carefully taken into the account, they may be mistaken for signs of intermittent fever.

The leading symptoms of *hectic fever* (by which, I say, the *continuance* of suppuration is commonly marked) are an abiding frequency of pulse; alternations of chilliness with heat and flushing, followed by perspiration; a gradual wasting of the body; and progressive debility.

I shall hereafter have to describe to you a very different kind of disease, in which, however, there is a succession of symptoms resembling more or less closely the series that characterizes hectic; I mean *remittent fever:* the succession of symptoms being chilliness, heat, perspiration. But these two disorders are in most cases discriminated from each other by the circumstances under which they occur.

The symptoms of hectic fever often creep on, at the outset, insidiously, and almost imperceptibly. "A very slight degree of emaciation, a pulse a little quicker than ordinary, with a small increase of heat, especially after meals, are often the first symptoms which can lead us to suspect the formation of hectic." Cullen has described hectic fever as consisting of two exacerbations in the 24 hours—one about noon, the other towards evening; but in many cases the latter alone is distinctly marked. The patient feels shivery and cold towards night; then the skin becomes hot and dry, especially in the palms of the hands and the soles of the feet, and the pulse *more* frequent; and in the middle of the night or towards morning, he wakes from short and uneasy sleep, in perspiration, which is often profuse. Sometimes, however, there are two or three fits in a day. The paroxysms are shorter, and less regular, than those of intermittent or of remittent fever. Each of the three phænomena constituting the series may, in its turn, be wanting: and even if the paroxysms are regular for two or three times together, they never continue to be so. Many circumstances connected with the paroxysm itself are very distinctive. "The hectic patient," says Dr. Heberden, who has left us a very good account of this affection in his *Commentaries*, "is very little or not at all relieved by the breaking out of the sweat; but is often as restless and uneasy after he begins to perspire as he was while he shivered or burned. All the signs of fever are sometimes found the same after the perspiration is over; and during their height the chilliness will in some patients return, which is an infallible character of this disorder. Almost all other fevers begin with a sense of cold, but in them it is never known to return and to last twenty minutes or half an hour, while the fever seems at its height, which in hectic will sometimes happen."

Hectic fever is one of the fearful accompaniments, and sometimes the most strongly marked symptom, of pulmonary consumption: and where the existence of that complaint is suspected, yet a matter of doubt, we look for indications of hectic fever with the greatest anxiety.

With relation to hectic fever, considered as an indirect symptom that suppuration has succeeded to inflammation, and is still going on, it will be worth your while to notice the strong contrast it offers in many particulars, to the *inflammatory* fever that attends the earlier stages of inflammation.

The pulse loses much or all of its *hardness* and strength, but it remains permanently more frequent than the pulse of health: the appetite returns in great measure; the thirst abates; the tongue, instead of being covered with a white fur, becomes clean and moist, and towards the end is sometimes unnaturally red, or speckled with aphthæ: there is no longer headache or confusion of thought.

A few more touches will suffice to fill up the picture of hectic fever.

The face is usually pale; but during the exacerbations it is partially flushed, and very often a characteristic circumscribed red spot appears upon either cheek. Besides the evident emaciation, various minor changes mark the want of proper nourishment: the skin, when not perspiring, is harsh and scurfy; little branny scales may be rubbed from the legs, merely by the friction produced in drawing off the stockings; the hairs become fine and fall off; the finger-nails are incurvated into an adunque form; and the sclerotic coat of the eye, as seen through the conjunctiva, becomes of a pearly white. As the disease advances œdematous swellings of the ankles are very apt to come on.

The connexion between hectic fever and the formation of pus in some part or other of the body is so frequent, that it has been deemed, by persons of great experience and sagacity, a *universal* fact. Dr. Cullen tells us, in his *First Lines*, that he had never seen hectic in any case, when there was not evidently, or when he had not ground to suppose there was, a permanent purulency or ulceration in some external or internal part. And Dr. J. Thomson, speaking of the opinion that hectic might occur independantly of suppuration, uses these words: "But till facts more decisive, and cases more accurately described than any which have yet appeared are produced in proof of that opinion, I shall think myself justified in adopting the *common* opinion; and in believing that hectic fever is in every instance connected, if not with the *absorption*, at least with the *formation* of pus."

The notion alluded to in the latter part of this quotation was at one time very commonly entertained, viz. that hectic fever resulted from the reabsorption of pus into the blood; but there are many facts decidedly opposed to this belief. Considerable collections of matter not unfrequently disappear, *i. e.* are taken up again into the blood, without occasioning the slightest approach to hectic. Again, hectic will accompany, and be kept up by, a scrofulous joint attended with an open sore, and it will sometimes cease at once, and completely, upon the removal of the diseased limb by amputation; although a greater quantity of pus is secreted by the stump, than had been secreted in the diseased part previously to the operation. Facts like these prove, I think, that hectic is not simply a consequence of the absorption of pus into the blood: and they seem to have suggested to Mr. Abernethy the notion (which was also held indeed by John Hunter) that sympathetic hectic fever is a *teased* action of the system, endeavouring to throw off what annoys it: the cause of irritation being removed, it ceases forthwith.

And there is another conclusive circumstance to be mentioned. Notwithstanding the opinions I just now quoted from Cullen and Thomson, I believe few persons who have attended to the subject, doubt, now, that there is such a thing as *idiopathic* hectic; hectic, unconnected at least with suppuration any where. We often see hectic, or a general state of the system not to be distinguished from hectic, in mothers who have suckled their infants too long: we see it too, sometimes, if I mistake not, in newly married husbands: and it may be noticed as occurring more or less distinctly in those who labour under diabetes. What is common to all these cases is, that there is an habitual drain upon the system beyond what the nutriment taken into it can supply and counterbalance. It is certain, too, that hectic fever sometimes happens in phthisis, not only before there has been any expectoration of puriform matter, but prior even to the softening and suppuration of a single tubercle. I call to mind one instance in particular of this. The hectic was distinctly marked, and continued long. The patient died, at last, comatose, after two attacks of convulsion. Two or three large scrofulous tumors were found imbedded in the substance of his brain. Various other organs were infested with tubercles; but the tubercles were all of them still hard and crude.

However, setting aside these rarer cases of exception, there can be no doubt that hectic fever, considered as a constitutional symptom of mischief that *may* reveal itself by scarcely any other token, and especially as a sign of suppuration, deserves all the attention we can give it; and for that reason have I spoken of it rather at large. Whenever I mention hectic fever in the farther progress of these lectures, you will know all that I wish to express by that term.

Typhoid fever.—I have very little to say at present respecting that modification of the general febrile disturbance, which sometimes attends *mortification* as an event of inflammation. I stated before that the fever is apt in these cases to assume the typhoid form; and to be characterized by sinking of the pulse, shrunken features, coldness and clamminess of the skin, a dry and black tongue, low muttering delirium or stupor, tremors of the voluntary muscles, with spasmodic startings of their tendons, and insensibility to the passage of fæces and of urine. I must, however, now inform you that these typhoid symptoms are no constant or necessary concomitants of mortification. The natural mode of death, under gangrene, is death by asthenia. But the typhoid state involves the nervous functions, and tends to death by coma. Whenever, therefore, typhoid symptoms supervene upon inflammation which ends in sphacelus, they may with much probability be attributed to some contamination of the blood by an animal poison; and such contamination may have taken place previously to the mortification, and have even helped to produce it, as when inflammation arises during the progress of the contagious febrile disorders; or it may occur as a consequence of the mortification itself, by direct absorption into the system of some of the putrefying and poisonous elements, into which the dead part has been resolved.

One circumstance, worth bearing in mind, as sometimes indicating the supervention of internal mortification, is the sudden cessation of pain: giving hope to the patient and his friends that the danger is over; but not deceiving the experienced physician.

Modification of inflammation by differences of tissue.—So much, then, for the local and constitutional events of inflammation, considered generally.

It remains for me to make some observations upon the modifications of inflammation, according as it affects the different tissues of which the body is composed. Many of these observations I have, indeed, already anticipated; but it will be useful to bring together, under one view, the most material facts ascertained on this matter.

Cellular tissue.—When inflammation affects the *cellular tissue*, all the events of inflammation which I have taken some pains to describe are apt to occur; and for that reason, inflammation of this tissue, as it exists beneath the skin, was chosen by me as a convenient type, or general representation, of the inflammatory process. There is the less necessity, therefore, that I should take up much of your time in speaking of the characters of inflammation exhibited in cellular tissue. There is a strong tendency to form circumscribed abscesses: the extension of the suppuration is prevented by a wall of lymph thrown out around it. The adhesive inflammation sets bounds to the suppurative. There is a good deal of pain when the cellular tissue is so situated that tension is occasioned by its swelling.

But sometimes no such boundary wall is erected, and the inflammation spreads and diffuses itself, and becomes a very terrible disease, destroying the cellular tissue over a large and undefined space, by a process between that of sloughing and that of suppuration. When the skin is implicated also in the inflammation, the disease is usually called *erysipelas phlegmonoides*: when the skin is not involved, it is called *diffused inflammation of the cellular membrane*. This diffused form of inflammation frequently follows the introduction of animal poisons into the system; and accompanies the inflammation of veins and of absorbent vessels. It is this disease which is so often fatal to members of our profession, when it results from wounds or punctures received in opening dead bodies. Dr. Craigie has recently put forth the opinion that in these cases of spreading inflammation it is the *adipous* tissue that is affected.

Substance of glands and solid viscera.—The substance of the *larger glands, and of the solid viscera* of the body, suffers changes analogous to those observed in the cellular tissue: probably because cellular tissue enters largely into their composition. Acute inflammation of the liver, when it does not terminate in resolution, leads to abscess in that organ. Abscess is rare in the lungs, perhaps for the reasons mentioned in the last lecture. Gangrene is also very rare in the pulmonary substance: and quite unknown, I believe, in the liver, and in the kidney. Inflammation of the latter organ is not unfrequently attended by purulent collections. Inflammation of the substance of the viscera is not, in general, attended with much pain.

The cellular tissue is liable to be rendered permanently thick and hard by *chronic* inflammation, as well in the parenchyma of internal organs as where it is spread out beneath the skin, or beneath serous or mucous membranes. Chronic induration and thickening of the cellular tissue which composes Glisson's capsule is no uncommon result of slow inflammation; producing that particular change in the liver which the French pathologists denominate *cirrhose*; but of which the essence is atrophy of its lobules from compression of its nutrient arteries.

Serous membranes.—The inflammation of *serous membranes* is characterized by sharp and severe pain; and by hardness of the pulse; and by buffy blood; by its tendency to spread; by the effusion of serous fluid, and of coagulable lymph; and sometimes, when the inflammation is very violent, or air gets admitted to the inflamed surface, by the effusion of pus. Speaking generally, however, it is *adhesive inflammation* which we expect in inflammation of this tissue. False membranes, consisting of organized lymph, belong to it: and the agglutination of contiguous surfaces. Sometimes the lymph, instead of being deposited in flakes or layers, appears in the form of numerous small granules: this is a phenomenon frequently observable in inflammation of the arachnoid, and of the peritoneum. Sometimes it has a villous or papillary or shaggy arrangement; or is cellular like a honey comb. This is common in the pericardium. The surface (to use the happy simile of Laennec) resembles that which may be produced by separating two flat plates between which a layer of soft butter had been spread: and it probably depends upon a similar cause; since in health a perpetual sliding motion of the pericardium over the heart is going on. Ulceration of a serous membrane is very uncommon. I mean ulceration *commencing* in that tissue: for these membranes are frequently perforated by ulcers which approach them on their attached side, and which begin in other tissues, especially the mucous. Neither does mortification occur in serous membranes, except sometimes by communication from other parts. The effect of *chronic* inflammation of the serous surfaces is to thicken, harden, and pucker them. We see this effect in the omentum frequently; in the peritoneal covering of the liver; in the serous membrane which forms so large a portion of the valves of the heart.

Synovial membranes.—The *synovial membranes* have a strong analogy to the serous. Gendrin includes the two in the same category: yet their behaviour under inflammation offers, in some respects, a marked distinction between them. They are less *liable* to inflammation than the serous membranes: they rarely throw out coagulable lymph, and, consequently, adhesion of their opposite surfaces is very uncommon. Joints do not become immoveable, or what is called anchylosed, in consequence of the agglutination of their synovial surfaces; but, generally, by means of granulations forming upon those surfaces after they have ulcerated. Very seldom indeed does pus form in the synovial sacs, except (again) the inflammation has been caused by mechanical injury, which has laid open the joint, and admitted air.

When this is the case, very serious constitutional disturbance is apt to take place, and the existence of the sufferer is endangered. That this does not depend upon the *mere violence of the exciting cause* is evident from the circumstance that the same acute inflammation, the same general affection of the system, and equal danger, often result from the careful incision made into a joint by the surgeon, for the purpose of removing loose portions of cartilage. I have now at the hospital an out-patient who has, among other ills, a large cartilage floating about in fluid in one of his knee-joints: but I believe that Mr. Arnott, whom I have consulted on the case, will be very slow to recommend its removal, until the inconvenience produced by it is so great as to incapacitate the patient from pursuing his employment, and until other methods of relief have failed. Suppuration of the joints is also one of the occasional consequences of phlebitis. Inflammation of the synovial membrane speedily leads to a *serous effusion* into the joint: which often, especially in rheumatism, is as speedily taken up again.

Tegumentary membranes.—Let us next inquire into the modifications which inflammation undergoes when it affects the tegumentary membranes.

Skin.—Considering the *skin* as *one membrane*, and neglecting its subdivisions into epidermis, rete mucosum, and cutis vera, we find that inflammation assumes a variety of forms in this external covering of the body. Many of these belong to specific diseases, and do not fall within my present purpose, which is that of noting how *common* inflammation varies in the different tissues.

When the inflammation is superficial, it frequently is denoted only by a diffused red blush, which may be banished for a moment by the pressure of the finger, and which after a certain time disappears of its own accord—terminates by resolution; the only consequence of the inflammation being the separation of the cuticle in small branny fragments; in one word, *desquamation*. We call the superficial inflammation, in this case, *erythema*. If the inflammation has been a little more intense—as in some cases of *erysipelas*, in *scalds*, and in that which we are every day exciting by *cantharides*—a serous fluid is poured out, which elevates the cuticle in larger or smaller patches of vesication. Remove the cuticle and admit the air, and the *serous* effusion becomes *purulent* effusion: and if the inflammation be pressed beyond a certain point by any *other* stimulus besides that of air, we may have pus poured out. Erysipelatous (which is also a specific) inflammation of the skin, is characterized by its remarkable tendency to spread: and a most singular circumstance attends several of the other specific inflammations of the skin—viz. that having occurred once, they never occur again: this peculiarity belongs, however, to the great constitutional diseases, of which the skin affection forms merely a part.

Mucous membranes.—Inflammations of the *internal* tegumentary membranes—of the three internal surfaces that communicate with the air, and are clothed with mucous membrane—are very interesting to the physician: and the first thing which strikes our attention in respect to them is the indisposition they manifest to adhesive inflammation: and we are struck at the same time with the *beauty* of this provision. If the mucous membranes were as ready to throw out coagulable lymph, and to adhere to each other, as the serous, almost every occurrence of inflammation in them would prove necessarily fatal; by closing up the *inlets* of the air-passages; or the *outlets* of the urinary passages; or any part of that long mucous canal which, passing through the body, requires a free opening at both of its extremities. But the inflamed mucous membrane pours out serous fluid; or viscid mucus; or pus; or blood. Inflammation of these membranes is, however, sometimes attended with the exudation of something which is very like coagulable lymph, and which has been considered (but, in my opinion, erroneously considered) to be such lymph. The tracheal, bronchial, and pulmonary mucous membrane, the œsophageal, the intestinal, and that which lines the uterus, are all more or less subject to the formation of adventitious membranes under inflammation. Casts of the smaller branches of the air tubes have, in rare instances, been repeatedly coughed up in large quantity; constituting what have very inaptly been called *bronchial polypi*. The membranous exudation of croup is well known: a tubular substance is formed in the trachea, and, sometimes, fortunately expelled: but too often it suffocates the patient. Similar concrete exudations, sometimes in irregular shreds, are occasionally voided by stool. It is said that a long membranous mass of the same kind, and resembling in size and shape an earthworm, has been expelled from the urethra; having formed there in consequence of the injudicious use of stimulating substances, injected with the view of checking the more innocent effusion of pus. The films, or membrane-like flakes which are thus incidental to inflammation of the mucous surfaces, resemble I say in their general appearance and disposition the strata or layers of coagulable lymph which are the ordinary product of inflammation of the closed serous surfaces. But they differ from these in some remarkable points. They are softer. They never contract permanent or strong adhesions to the subjacent inflamed membrane; but are partially separated from it by the intervention of thinner matters, serous or puriform.

Above all, they never become organized. They appear to consist of inspissated and altered mucus; and are composed, in a great measure, of albumen. An opinion has been entertained that the *want of apposition* of the opposite surfaces has a great deal to do with their indisposition to cohere. The mucous *air* tubes are kept open and apart by their *structure:* the stomach and intestines by their *contents,* or by the frequent passage of solids or fluids through them: and, therefore, (it has been supposed) they have no *opportunity* of adhering. But there can be no doubt that these mucous membranes are but little disposed to throw out true lymph at all: and when their opposite surfaces do grow together, I believe it will almost always be found that some abrasion or ulceration of the mucous surface has previously happened.

Inflammation affecting the mucous membranes has sometimes a strong tendency to spread and wander: sometimes, on the contrary, it is strictly confined to a small and definite space. In the former case it commonly restricts itself for a long time, or altogether, to the mucous tissue, leaving the neighbouring tissues untouched. In the latter it is apt to penetrate to the subjacent parts, and to produce obvious and enduring alterations of structure. The membrane becomes fastened to the parts which it clothes, and not unfrequently it ulcerates or sloughs.

The spreading form of inflammation is most often met with in the air-passages. Ulceration and sloughing, and circumscribed inflammation, are more common in the alimentary canal.

There is a remarkable contrast between the serous membranes and the mucous, in respect to the *pain* which attends their inflammation. Very little pain is experienced in many cases when inflammation affects the mucous lining in any of the three systems, except towards their openings, where the membranes are about becoming continuous with the external skin: in the mouth and throat, for example, the pharynx, the rectum, the vagina, the extremity of the urethra. And as inflammation of the mucous membranes is attended by less *pain,* so also it is accompanied by less *fever* than when the serous membranes are attacked; and the blood more seldom exhibits the buffy coat.

Muscular tissue.—The *muscular tissue* appears to take on the actions of inflammation very reluctantly: and its vessels seldom, if ever, pour forth any of the products of inflammation. The chief effect of inflammation upon muscle is the destruction of its contractible properties. Serum and lymph, and even pus, are sometimes found diffused through muscular parts; but there is reason to believe that these effusions are rather the consequence of inflammation of the cellular tissue which enters into the composition of the muscle, which ties together its muscular fibres, than of inflammation of those fibres themselves.

Arteries.—I have remarked already that inflammation of an *artery* presently leads to the effusion of lymph, and the coagulation of the blood, in the artery. But arteries do not readily inflame, except under mechanical injury: they do not often suppurate either: and they possess a singular power of resisting mortification. Dr. J. Thomson declares that he has seen cases of phlegmonous erysipelas, in which "several inches of the femoral artery were laid completely bare by the gangrene, ulceration, and sphacelus of the parts covering it, without its giving way before death."

Veins.—Inflammation of the *veins* is much more common than that of the arteries: and it is a disease of fearful interest. In some cases it leads to a deposit of fibrin upon the inside of the vessel, "furring it over," as Mr. Hunter says. The blood soon coagulates, and blocks up the inflamed vein, or leaves, perhaps, a narrow passage in its centre. From this mechanical obstruction to the current of the blood new symptoms arise. The part from which the venous trunk receives its tributary branches becomes œdematous or dropsical. Inflammation of the femoral vein, obliterating its cavity, is the essence of the complaint known to pathologists under the name of *phlegmasia dolens:* a complaint which may happen to persons of any age, and of either sex: but which is most common in women soon after parturition.

This, which may be considered the adhesive form of phlebitis, is also its most innocent form. Too frequently the inflammation runs into suppuration; and then it proves a most terrible and almost hopeless disorder. The vein remains pervious; pus, of an unwholesome and poisonous quality — or some morbid product of the inflammation — is carried into the blood; which thus scatters, in its course, the seeds of inflammation, and determines the rapid formation of purulent collections, in various and distant parts of the body, and especially in the lungs, the liver, and the larger joints. Great constitutional disturbance ensues, and fever of a typhoid type is established. To this, the destructive form of the disease, parturient women are also peculiarly liable. Phlebitis of the uterine veins constitutes the source of the most dangerous and deadly varieties of puerperal fever. It is the same disease which gives to a vast majority of those surgical operations that are followed by death, their fatal character.

Substance of the brain.—We hear continually of inflammation of the *brain;* but what is so called is, most commonly, inflammation of the *membranes* which invest the brain. Inflammation of the cerebral substance itself is, however, not very uncommon; but it is more frequently the result of injury than of spontaneous disease, and it is usually confined to a limited portion of the brain. Softening and suppuration are its ordinary events. Sometimes pus is met with occupying a distinctly circumscribed space; the pus is collected into an abscess. Sometimes, on the other hand, it lies loose, as it were, and surrounded by broken-down cerebral matter, or it is infiltrated into the cerebral pulp. Around the softened portions the inflamed substance of the brain is more dense and firm, sometimes, than is natural. Whether this be owing to the presence of coagulable lymph, has not (so far as I know) been clearly ascertained. Mortification must be very rare in the nervous substance. Dr. Baillie has described it as occurring after violent injury. Once or twice in my life, portions of brain have been shown to me, protruding through an aperture in the skull, dead, of a dark colour, and having an offensive smell. Excepting in these cases of *hernia cerebri*, I have never seen sphacelus of the brain from any cause.

Perhaps, however, I am incorrect in saying this. I formerly told you that portions of the brain often become soft and diffluent, when there has been no inflammation; but simply from atrophy, depending on a diseased state of the nutrient arteries of the brain. Now some persons call *this* mortification of the cerebral substance. They consider it quite analogous to the gangrena senilis, which results from a similar cause, although it happens in another part of the body. The *nature* of the change, they say, is the same, although *the physical characters of it* differ. If this be so, I have seen gangrene of the brain some scores of times: but still I should be able to declare, that with, perhaps, the exception already mentioned, I have never seen unequivocal mortification of the cerebral substance as the result of inflammation; which is what we have now been considering.

This concludes, gentlemen, what I have to say concerning the phænomena of common inflammation, as they are perpetually witnessed in the various textures of the body. I have not, indeed, gone through all the tissues; I have said nothing of the peculiar effects of inflammation, in cartilages for example, and in bones; but I have glanced at all those tissues in the inflammation of which the physician is chiefly concerned; upon such points as I have purposely omitted, you will be amply instructed by my colleague, the professor of surgery.

ON THE RESULTS OF AMPUTATIONS.

To the Editor of the Medical Gazette.

SIR,

THE accompanying paper was prepared for the Glasgow Medical Society nearly two years ago. I had laid it aside, but at the recommendation of the president of the section, read it before the medical section of the British Association, at their meeting here in September. Perhaps you may find a place for it in your journal.—I am, sir,

Very obediently yours,
J. A. LAWRIE, M.D.
Professor of Surgery Anderson's University, Surgeon Glasgow Royal Infirmary, Glasgow Lock Hospital, &c.

Glasgow, Oct. 29th, 1840.

The frequency of its performance, the mutilation which it causes, its severity, and its immediate and ultimate dangers, combine in making the operation of amputation one of the most important subjects which can occupy the attention of the practical and operative surgeon: it is peculiarly so to the hospital surgeon in such a city as Glasgow. In private practice, in the better ranks of society, it is an operation of comparatively rare performance; whereas in hospitals it exceeds many fold all the other capital operations combined. In this city and neighbourhood, the character of the climate strongly predisposing to diseases of the joints; the number of our public works; the extent and variety of machinery employed in our manufactories; the amount of our shipping, and number of steam vessels; our coal mines and stone quarries; the great increase of building, and the certainty that ere long Glasgow will be the centre from which numerous railways will radiate, give to the operation of amputation, by greatly increasing its frequency, an interest exceeding perhaps all others performed in our infirmary.

I need not inform the members of this section that this subject has attracted much attention, and that of late years many parts of it have been so much improved as to leave little farther to be desired. The subject of this essay, "The Results of Amputations," has not, however, met with that consideration to which its importance appears to entitle it. Although success may not in every instance be a fair test of the propriety of treatment adopted in individual cases; in the aggregate, it is the best—indeed, the only true—criterion by which to judge of operative surgery. For many years the operation of lithotomy, and the removal of cancerous disease, have been tested in this manner, and the result has been that the confidence of the profession has increased in the one, while the other, except as a palliative, has been almost entirely abandoned. I am surprised that the same severity of investigation has not been applied to amputations. Mr. Samuel Cooper, in the last edition of his Dictionary, while he devotes several columns of his closely printed pages to the history of amputations, says scarcely a word of their results. Our best and most recent works on operative surgery are open to the same objection; for while the different methods which ingenuity has suggested for the removal of particular parts are minutely detailed, hardly one word is of the results of their operations, either in the aggregate, or as contrasted with each other. Our military surgeons for many years have been more attentive to this subject than their brethren in civil practice; but until the end of the peninsular war their opinions were by no means in accordance regarding it. Belguer, Surgeon-General to the Prussian army, in a treatise published in 1762, condemns amputation as an operation hardly justifiable under any circumstances. He carried his opposition so far, that "he suffered no amputation to be performed in the Prussian army." He states his success as follows:—"I had at one time during the war, in a military hospital, 6618 wounded patients; of them 5557 were perfectly cured, 195 were able to do duty in person or to work at any trade, 213 remained incapable of any labour, civil or military, and 663 died. The 195 and 213 invalids were of the number of those who had their bones broken and shattered, or, in other words, whose wounds were complicated and dangerous. Of the 663 who died, 408 only died from shattered bones, which number, 408, is equal to that of those who were cured without amputation, although their wounds had been of the same kind." One half therefore of his severe wounds of the extremities died, the other lived without operation. "If," continues Belguer, "after making these calculations, we compare them with the prodigious number of married men who, at the beginning of the war, had their limbs taken off on account of dangerous wounds, of whom scarcely one or two escaped with their lives, we may safely conclude that much the greater part of these 408 men cured and sent to the invalids, would have died if amputation had been performed."

The result of Belguer's experience would thus seem to be, that of 6618 wounded, 916 were cases requiring amputation, of whom 408 died, 213 were incapable of any labour, and 195 were able to work at any trade.

These opinions do not seem to have influenced the practice of British military surgeons, who never seem to have doubted the propriety of amputations in certain severe accidents. With them the preference to be given to primary or secondary amputations after gun-shot injuries, formed the principal ground for difference of opinion. Wiseman and Manby were in favour of immediate amputation, while John Hunter was an advocate for the secondary. Towards the close of the peninsular war, British military surgeons were almost unanimously in favour of the former. Mr. Guthrie, in his work on Gun-shot Wounds and Amputations, gives the following tables:—

I. *Amputations performed at hospital stations.—Secondary.*

	No. of Amputations.	Died.	Discharged Cured.	Under Treatment.
Amputations of upper extremity . .	296	116	105	75
Amputations of lower extremity . .	255	149	65	41
Total	551	265	170	116

II. *Operations performed on the field of battle.—Primary.*

	Number of Cases.	Died.	Discharged Cured.	Under Treatment.
Amputations of upper extremity . .	163	5	64	94
Amputations of lower extremity . .	128	19	43	66
Total	291	24	107	160

From these tables it appears, that of 551 cases of secondary amputations, 265, or nearly one half, died. Of 291 cases of primary amputations, 24, or nearly one in twelve, died. Farther, the comparative loss in secondary or delayed operations, and primary or immediate, is—

	Secondary.		Primary.
Upper extremities .	12	to	1
Lower extremities . .	3	to	1

These tables appear quite conclusive as to the propriety of primary amputation in military practice. In other respects, however, they are not so satisfactory as could be wished. The cases marked "under treatment," in both tables, having passed the periods of danger, are considered as recovered. In civil hospital practice, I would not consider a patient recovered until he had left the hospital; and as the cases under treatment amount to 276, they cannot be looked upon as accurate data for estimating the results of amputations.

In the MEDICAL GAZETTE for June 1838, there is a paper by Mr. Phillips, entitled "Observations arising out of the Results of Amputations in different Countries." He says (p. 459), the amputations included in this inquiry are those of the arm and forearm, leg and thigh. The whole of them have been performed in the last four years in civil hospitals, and in the private practice of hospital surgeons. The details are—

	Cases.	Deaths.	Per Cent.
France	203	47	$23\frac{31}{203}$
Germany . . .	109	26	$23\frac{93}{109}$
America . . .	95	24	$25\frac{5}{19}$
Great Britain.	233	53	$22\frac{174}{233}$
Total	640	150	23 7

By these returns it appears, that the average number of deaths is nearly 23½ per cent. The remainder of Mr. Phillips's paper is devoted to the question of immediate or secondary union of stumps after amputation for disease, the result of which is, that "attendant on the practice of immediate union is a mortality amounting to 25 per cent.

It must be obvious that the experience of any one of even our best employed surgeons must be inadequate to determine a question of such extent as the results of amputations. Experience on a large scale, and extended over a considerable period, can alone be relied on. It occurred to me, that the records of an infirmary, carefully examined, might in a great measure supply the deficiency, and that details more minute than any I have yet met with might be of use to our hospital surgeons. Assisted by my young friends Dr. M'Lean and Mr. Parish, I have carefully examined all our Infirmary surgical records which I could procure, from the commencement of the hospital to the beginning of 1839, and I have now the pleasure to lay the results before this section. They are neither so extensive, nor, in many instances, so minute as I could wish. Many of the journals have been lost, and others are very carelessly kept; some, on the other hand, are so admirably accurate, that had all the surgical and medical records of any infirmary, from the year 1795 to the present day, been as carefully kept, they would have presented a mass of information capable of determining almost any point in the professional statistics of hospital practice. We are not yet too late, and I would take the liberty of impressing on the members of this section, connected with hospitals, the great value of accurate records. The present state and history of every case ought to be entered in a journal kept for the purpose, and belonging to the hospital, which ought to be premised by a statement of the patient's name, age, constitution, occupation, and residence. (This last is of importance, as enabling us to trace our patients after they leave the hospital, and to ascertain the ultimate result of our treatment.) The date of each operation should be accurately noted, and the true results candidly given. It would also be a convenience if the indices were properly filled up with a column for "operations."

The abstract from which these remarks and tables are drawn consists of 276 cases of amputation of the shoulder, arm, and forearm, hip, thigh, leg and foot, as they occur in the journals, from 1794 to the end of 1838.

Of these 276 there were—

Cured	176	63·7	per cent.
Died	100	36·3	,, ,,

Deaths to recoveries as 1 to 2·75

a mortality, I fear, greater than those are prepared for, who have not been in the habit of turning their attention to this subject.

Of the 276 there were—

		Cured.	Died.	Deaths to Recoveries.
Males	216	130	86	1 to 1·6
Females	60	46	14	1 to 3·3

By which it appears that the males are to the females as 3½ to 1, and that the proportionate mortality among the males is to that among the females as 1·6 to 3·3. The greater mortality among the males is in part, but not altogether, accounted for by the greater number of primary amputations among them, as will appear in the sequel.

Of 133 cases in which "the number of days in hospital after amputation," is noted, 79 were cured, 54 died. Of the cured, the average number of days under treatment after operation is 42, the least being 8, the greatest 128. Of the deaths, the average is 13 days, the least three hours, the greatest 199 days.

I have divided the cases of amputation into two general classes: 1. Amtation for disease; 2. Amputations for injuries. The second I have subdivided into primary and secondary. By primary amputations, I mean amputations for injuries performed as soon after the accident as circumstances will permit—almost always within the first 24 hours, and without any attempt made to save the limb. By secondary, those cases in which attempts have been made, and failed, to preserve the limb, and amputation been performed in consequence of the failure. Each of them I have subdivided into amputations at the shoulder, arm, and forearm, hip, thigh, and leg.

I. *Amputations for disease.*—Of the 276 cases, 153 (more than one half) were for disease.

Cured	118	77·1	per cent.
Died	35	22·9	,, ,,

The following table shews the detailed results:—

	No. of each.	Cured.	Died.	Deaths to Recoveries as
Shoulder	2	1	1	1 to 1
Arm	17	14	3	1½ to 7
Forearm	4	4	0	No death.
Thigh	92	73	19	1 to 3⅘ nearly
Leg	35	23	12	1 to 2 fully
Foot (partial)	3	3	0	No death.
Total	153	118	35	

The diseases with their results were as follows:—

			Males		Females.		Total Cured.	Total Died.	Deaths to Recoveries.
		Of which there were—	Cured.	Died.	Cured.	Died.			
Diseased joints .	98		60	11	23	4	83	15	1 to 6⅓
Necrosis	12		7	1	2	2	9	3	1 to 3
Caries	21		13	4	3	1	16	5	1 to 3⅕
Tumors	12		6	2	3	1	9	3	1 to 3
Gangrene . . .	5		1	1	2	1	3	2	2 to 3
Ulcers	5		1	4	0	0	1	4	4 to 1

In this table of the more common amputations, that below the knee is the least favourable. This may be owing to the unfavourable situation at which the operation is performed. In a great majority of instances, even for disease of the foot and ankle, amputation of the leg is performed below the knee, to enable the patient to rest on the bent knee, in using the common "wooden pin." But by a very simple, and by no means expensive apparatus, the patient can walk on the "wooden pin" with his knee straight, and a long stump, instead of being an inconvenience, is a great advantage. The above tables, by pointing out the danger of the common method of operating, should induce us never to remove more of the limb than will insure that the parts which form the stump are sound, and in all cases, except those of necessity, to abandon the operation "below the knee."

It struck me as remarkable, that of the first 30 amputations in the list "for disease," viz. from the year 1794 to 1810 inclusive, 29 recovered, and one died; whereas, of the last 30, 22 recovered, and 8 died. Thinking this might be accidental, I took the central numbers (from 142 to 209, inclusive), and the proportion was 19 cures, and 11 deaths. It is not altogether easy to account for this very remarkable discrepancy. It is obviously by no means complimentary to our modern improvements in operating and dressing. Of the first thirty, in which the cures are, to the deaths, as 29 to 1, it is probable that all the operations were performed by the double circular method, that all the stumps were dressed before the patient left the table, that the dressings were removed by rule, with little regard to the appearance of the stump, and that in all the tourniquet was used. Of the last 30, of which 22 recovered, and 8 died, 28 were single or double flap operations, of which 21 recovered, and 7 died; 2 were double circular, of which one was cured and one died.

Of the *supposed* recent improvements, there is one which I may be excused for noticing in this place,—I mean delayed dressing. This, after what I thought a fair trial, I have almost entirely abandoned. Its advocates support it mainly on the plea of avoiding secondary hæmorrhage. In my own practice I do not recollect ever to have taken down a stump for this cause, and I believe a little care in tying bleeding vessels on the operating table would prevent it. My objection to the plan of not dressing the stump till six or eight hours after the operation, is the additional suffering that it causes our patients. I have uniformly found my patients complain fully more, and suffer nearly as great a shock, from the delayed dressing, as from the operation itself. As for preventing hæmorrhage, the support of the dressings frequently has this effect; and as for the pain of removing the dressings in the few cases in which hæmorrhage does occur, I believe it to be small in amount in comparison with that which must be occasioned in every case by not dressing on the table.

It is probable, that previously to the publication of Sir B. Brodie's work on Diseases of the Joints, diseased articulations, especially of the knee, classified under the comprehensive appellation "white swelling," were reckoned incurable, and removed at a much earlier period than they now are. Of this I am convinced from a perusal of the cases, as recorded in the journals of the Infirmary. Amputation seems to have been performed for disease, the very proposal of removing which by operation a modern consultation would scout. To prove this I constructed the two following tables. I took the 71 first cases of diseased joints as they occur in the journals, from 1794, downwards, and 82 in the journals since 1833, without selection. The numbers 71 and 82 are accidental. *(See next page.)*

From these tables it appears that, of 71 cases of diseased joints in the early days of the hospital, 30, or 1 in 2·36, suffered amputations; while of 82 in the later period, 22, or 1 in 3·73, only were operated on. The difference is still more striking if we take the knee joint. Of 44, in the early period, 19, or 1 in 2·30, were amputated; while, at the later period, of 57, 11, or 1 in 5·1, were removed, and I believe the differences are daily increasing. Of the whole number amputated in the early period, 1 in 9 died; in the later, 1 in 3⅔. Cured, including amputations, in the early period, 40, or 1 in 1¾; in the later 48, or 1 in 1¾ very nearly. Cured with-

Tables shewing the results of diseased joints, treated in the earlier and later periods of the hospitals.

		Amputated.		Not amputated.			No of Cases.
		Cured.	Died.	Cured.	Relieved.	Died.	
Early period.	Elbow	5	0	1	6	0	12
	Wrist	1	0	1	2	0	4
	Knee	16	3	9	15	1	44
	Ankle	5	0	2	4	0	11
	Totals	27	3	13	27	1	71
		30		41			
Late period.	Elbow	3	0	2	6	0	11
	Wrist	2	0	3	0	0	5
	Knee	8	3	24	20	2	57
	Ankle	4	2	2	1	0	9
	Totals	17	5	31	27	2	82
		22		41			

out amputation, in the early period, 13, or 1 in 5·4; later period, 31, or 1 in 2·6 From which it appears, that the *number* of *cures* in the two periods is nearly precisely the same, but that in the early period it is effected principally by the amputating knife, in the later by treatment.

Another practical conclusion appears to be, that in disease requiring amputation, after the acute stage has passed, the earlier the amputation is performed the better is the chance of recovery. This is a conclusion at which I have long since arrived, and I would lay it down as an axiom, that the shorter the duration of the disease, and the less the system has suffered under it, the greater is the chance of recovery after amputation, and *vice versâ*. The difficulty is to determine, in the early stage, what disease is curable without amputation, and what must ultimately be removed; a correct diagnosis here, as in almost every other instance, being essential to success. The error we at present commit is delaying amputation after every rational hope of cure has fled, merely because the patient is not obviously dying. The consequence has been the reduction of the success of amputations from 1 in 30 to 1 in less than three by one calculation, and from 1 in 9 to 1 in $3\frac{2}{3}$ by another. To this point I would beg to call the attention of hospital surgeons in this section. Our predecessors amputated to remove what they reckoned an incurable disease, while the health was still good—we seldom operate except to save life, or rather to preserve from immediate death. Now I feel satisfied, that the number of lives rapidly ebbing from whatever cause, which amputation will save, is very small; and if we restrict our amputations to such cases, we must necessarily be very unsuccessful. I am no advocate for uncalled-for operation; but surely it is better to save life by removing a disease which we cannot cure, than to delay until treatment and amputation are nearly alike unavailing. A medium between the early and the modern practice of our hospitals would preserve limbs and save lives. It is, however, but justice to ourselves to state, that the more dissipated habits and lowered condition of our patients, added to the increased size of our hospital, and the crowded state of its wards, must have considerable influence in diminishing the success of our operations.

Primary amputations.—Of the 276 cases, 77, or 1 in 3·5, are primary. Of these 38 were cured, 39 died, the recoveries and deaths being very nearly equal.

The following table shews the results in each limb:—

	No. of each.	Cured.	Died.	Deaths to Recoveries as
Shoulder joint . . .	3	1	2	2 to 1
Arm	23	12	11	11 to 12
Forearm	15	15	0	No death.
Hip	1	1	0	No death.
Thigh*	11	0	11	No death.
Leg	22	7	15	2 to 1 fully
Foot (partial) . . .	2	2	0	No death.
Total	77	38	39	

The remarkable circumstance in these results is the great mortality. As it stands the deaths exceed the recoveries; and if we exclude the forearm, all of which recovered, the disproportion becomes very great. When we compare this table with that of Mr. Guthrie, the discrepancy is extraordinary. In his primary operations the deaths are to the recoveries as 1 to 12; in ours they rather exceed the recoveries. I believe that in military practice, especially on the field of battle, very many limbs were removed which, in civil practice, we should have attempted to preserve. In our hospital we rarely, if ever, amputate, unless it be obvious that the limb cannot possibly be saved. It is farther probable, that when the patient is seen almost immediately after being wounded, and the amputation is performed on the field of battle, he is in a much better state to bear the operation, and more favourably circumstanced for recovery, than in civil practice, where he is not seen by the hospital surgeon for many hours after the accident, and after being carried, it may be, several miles. Our accidents demanding amputation are rarely uncomplicated: a fall from a height, or the descent of a mass of of earth, not only smashes a limb, but injures another limb, the head or other important organ, and inflicts a severe shock on the general system. From these causes the majority of our patients are in such a state of extreme exhaustion and shock when admitted, as to be unable to bear the operation; and when they rally the reaction is too often typhoid, or attacks a vital organ. Our machinery and railway accidents, which form a considerable proportion of our primary amputations, are also very frequently complicated, and of themselves severely implicates the constitution. To these must be added the risks our patients run after the immediate effects of the amputation are past, as explained in the sequel. Whether these considerations satisfactorily account for our great mortality it is not easy to determine.

Mr. Guthrie, in his work so frequently alluded to, insists much on the impropriety of operating while the constitution is much under the influence of shock. In this I fully concur, and I would lay it down as an axiom in primary amputations, that the less there is of shock, or in other words, the nearer the patient is to a state of health, the better will he bear the operation, and the more certain will be his recovery; and I believe it is of the effects of fearful depression that so many of our patients perish.

The second striking peculiarity in our tables is the fatality of our primary amputations of the thigh. In eleven cases there is not one recovery. This was so unexpected, that, fearful of mistake, I re-examined a great proportion of our journals, and could only find one case omitted—a boy, 12 years of age, who was cured. The table ought, therefore, to stand thus:—

	Cured.	Died.	Deaths to Recoveries.
12	1	11	11 to 1

Secondary amputations.—Of the 276 cases, 46, or 1 in 6, were secondary. Of these there were—

Cured.	Died.	Deaths to Recoveries as
20	26	5 to 4 fully.

The following table shews the detailed results:—

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* This should be 12. Cured 1; died 11, as stated further on.

	No. of each.	Cured.	Died.	Deaths to Recoveries.
Shoulder-joint . . .	1	1	0	No death.
Arm	13	6	7	7 to 6.
Forearm	3	3	0	No death.
Thigh	24	8	16	2 to 1.
Leg	5	2	3	3 to 2.
Total	46	20	26	5 to 4 fully.

This table *apparently* confirms the experience of our army surgeons, inasmuch as the *aggregate* result of secondary amputation is even more unfavourable than of primary. It however illustrates well the necessity of analysing tables, because so far from proving that secondary are less favourable than primary amputations, it shews the contrary to be true. In order that inferences drawn from tables of this kind be accurate, the amputations performed *on each limb* must be compared, otherwise they are almost certain to be erroneous. The following table illustrates this:—

Comparison of the results of primary and secondary amputations of each limb.

	Primary Deaths to Recoveries.	Secondary Deaths to Recoveries.
Shoulder-joint . . .	2 to 1	No death.
Arm	11 to 12	7 to 6
Forearm	No death.	No death.
Thigh	11 to 1	2 to 1
Leg	2 to 1 fully.	3 to 2

This table shews that in the thigh secondary amputations are much more favourable than primary, in the leg decidedly so, in the forearm equal, in the shoulder superior, and in the arm slightly inferior. The numbers in some instances are small, and require confirmation. The *apparently* more favourable results of primary and secondary amputations in the *aggregate* depends on the greater number of amputations of the forearm (15 primary, 3 secondary), and on two partial amputations of the foot in the former, and none in the latter. It is remarkable that of 22 amputations of the forearm recorded in these tables, there is no death. It would be premature to draw from these tables any conclusion for or against primary as compared with secondary amputations. This much I may say, that the encouragement which they hold out for primary amputations in our Infirmary is not great. The subject requires farther illustrations, and I hope will not be lost sight of. To illustrate it still farther, I have noted the results of 40 compound fractures and dislocations, in which attempts were made to save the limb, and on which no secondary amputation was performed.

Table showing the results of Compound Fractures and Dislocations (not amputated).

	No. of each.	Cured.	Died.	Deaths to Recoveries.
Thigh	5	1	4	4 to 1
Leg	21	15	6	2 ,, 5
Foot and Ankle . .	5	2	3	3 ,, 2
Arm	5	3	2	3 ,, 2
Elbow	2	1	1	1 ,, 1
Forearm	2	1	1	1 ,, 1
Total	40	23	17	

From this table it appears that in attempts to cure compound fractures and dislocations the cures considerably exceed the deaths. The last table (p. 401) shews that when the attempt fails secondary is more favourable than primary amputation. The combined results seem to warrant attempts to save severe cases, in preference to immediate amputation.

Table shewing the number of Amputations performed at different Ages, with the Cures and Deaths distinguished according to sex, and divided into Amputations for Disease—Primary, Secondary.

Ages from	MALES.						FEMALES.					
	Disease.		Primary.		Secondary.		Disease.		Primary.		Secondary.	
	Cured.	Died.	Cured.	Died.	Cured.	Died.	Cured.	Died.	Cured.	Died.	Cured.	Died.
1 to 10	9	4	0	0	1	0	2	0	1	0	0	0
10 20	30	2	5	8	3	7	13	3	2	0	2	0
20 30	17	9	10	14	5	0	6	1	2	2	2	0
30 40	15	6	10	4	.2	6	7	2	0	0	1	0
40 50	6	4	4	4	1	6	4	1	0	0	0	0
50 60	3	1	1	5	2	3	0	0	0	0	0	2
60 70	1	3	1	0	0	1	2	0	0	0	0	0
70 80	0	0	2	0	0	0	0	0	0	0	0	0
80 90	0	0	0	1	0	0	0	0	0	0	0	0
Totals.	81	29	33	36	14	23	34	7	5	2	5	2
	110		69		37		41		7		7	
	216						55					
	271											

This table contains only 271 cases, because 5 of the 276 of which the former tables are composed had no age given.

The following particulars may be gathered from it:—

Of 216 males 110 were amputations for disease, and 106 (nearly one half) for accidents. Of 55 females 41 were for disease, and 14 (about a fourth) for accidents.

Of 110 males for disease there were

Cured.	Died.	Deaths to Recoveries, as
81	29	1 to 28

Of 41 females there were

Cured.	Died.	Deaths to Recoveries, as
34	7	1 to 4·8

exhibiting a proportion decidedly in favour of females.

Of 106 male amputations for accidents there were

Cured.	Died.	Deaths to Recoveries, as
47	59	$1\frac{12}{47}$ to 1

Of 14 females for accidents there were

Cured.	Died.	Deaths to Recoveries, as
10	4	2 to 5

again giving a result in favour of the females.

Table shewing the number of amputations at different ages (including males and females) with the proportionate mortality.

Ages.	Numbers.	Cured.	Died.	Deaths to Recoveries.
From 1 to 10	15	11	4	1 to $2\frac{3}{4}$
10 20	48	43	5	1 to $8\frac{3}{5}$
20 30	33	23	10	1 to $2\frac{3}{10}$
30 40	30	22	8	1 to $2\frac{3}{4}$
40 50	15	10	5	1 to 2
50 60	17	6	11	2 to 1 nearly.
60 70	8	4	4	1 to 1

The rate of mortality for the ages between 9 and 20 is by much the most favourable (1 to 8⅜), while that from 50 to 60 is the least so (2 to 1); with the exception of those from 60 to 70 (1 to 1), all the others vary only from 1 to 2 the highest, to 1 to 2¼ the lowest.

The ages from 10 to 20 afford the greatest number of amputations for disease; those from 20 to 40 the greatest number for accident.

Causes of death in amputations.—I have been able to procure pretty accurate pathological accounts of 73 deaths after amputation, all occurring in the hospital. I have arranged them as follows:—

able shewing the causes of death in 73 amputations, the limbs amputated, and the number of days each case survived.

			Primary.	Secondary.	Diseased.	Shoulder.	Arm.	Thigh.	Leg.	Total.	Number of days each case survived.
	Bad sores		0	1	0	0	0	1	0	1	39
	Cerebral effusions		0	0	1	0	0	0	1	1	32
	Diffuse inflammation and erysipelas		3	1	0	0	3	1	0	4	17, 7, 11, 5
	Exhaustion, shock, & complications		5	6	0	0	2	9	0	11	?, ?, 2 hrs., 3, 1, 12 hrs., 1 hr.
	Delirium tremens		0	1	0	0	0	1	0	1	3, 4
	Gangrene of stump		4	2	0	0	0	4	2	6	9 hrs., 3, 3, 1, 5, 7
	Secondary hæmorrhage		0	2	2	0	0	4	0	4	49, 2, 2, 2
	Tetanus		1	0	0	0	0	1	0	1	1
Secondary Inflam. 44.	Diarrhœa		2	1	2	0	1	3	1	5	5, 8, 20, 3, 11
	Pericarditis	29	1	0	1	0	1	0	1	2	?, 21
	Pleuritis		1	4	1	0	1	4	1	6	?, 94, 4, 6, 12, ?
	Pneumonia		2	0	0	0	0	1	1	2	20, 38
	Purulent deposits		4	5	7	1	5	3	7	16	13, 12, 7, 27, 24, 29, 28, 6
	Phlebitis		2	0	1	0	0	1	2	3	14, 5, 17, 18, 18, 5, 10, 36
	Rigors		5	1	1	1	3	1	2	7	?, 14, 18, 3, 12, 45, 22
	Secondary inflammation		2	0	0	0	0	1	1	2	10, 6
	Secondary external abscess		0	0	1	0	0	0	1	1	31
			32	24	17	2	16	35	20	73	

From this table it appears that of 73 deaths, of whose causes and pathology more or less accurate records are given, 32 were primary, 24 secondary, and 17 disease. I have divided the causes of death into, 1st, causes independent of secondary inflammation; and 2d, the various kinds of secondary inflammatory affections.

Of the 8 causes enumerated belonging to the first class, 4 caused one death each, and need not detain us; of the other four, exhaustion, shock, and complication of injuries, caused 11, gangrene of the stumps 6, secondary hæmorrhage 4, and diffusive inflammation and erysipelas 4. It is remarkable that of these 25 deaths 22 were from accidents, and 3 from disease—of which three, two were caused by secondary hæmorrhage. It is highly probable that the 16 cases of exhaustion and gangrene mainly owed their fatal termination to the great severity of the accidents which rendered amputation necessary, aided by the severity of the operation. This is confirmed, first, by the number of hours and days which each case survived the amputation (four did not survive one day, and the longest period is seven days); and, second, by the part amputated (of the sixteen, fourteen were thigh, two leg). The diffusive inflammation and erysipelas were probably owing to the severity of the injury, and the air of the hospital. I was surprised to find that so few of the fatal terminations are attributable to these causes: of the four, three were arm, one thigh.

Secondary inflammations.—In this class, besides those pathological states which are almost universally acknowledged to arise from what is usually styled secondary inflammation, I have included "rigors" and "diarrhœa," the former because I have no doubt that the rigors were symptomatic of secondary disease, and the latter because I believed that ulceration of the intestinal mucous membrane causing diarrhœa belongs to the same class of affections. Of the seventy-three deaths forty-four belong to secondary inflammation, and twenty-nine to other causes, shewing that secondary disease exceeds all other causes of death combined, very nearly in the proportion of five to three. Of these forty-four, nineteen were primary, eleven secondary, and fourteen diseased.

As this subject, secondary inflammation, is one of vast importance, I may, perhaps, be excused if I state what appear to me to be a few facts connected with it. First, as regards their history, I believe they are much more common now than they were thirty or forty years ago. My reason for saying so is, that amputations were then much more successful than they are now, which could not have been the case had these fatal secondary inflammatory diseases been as frequent. If I were asked to assign the probable cause, I should say that it is because those amputations were performed at a much earlier stage of disease, and on patients comparatively in good general health; second, they are infinitely more common in hospitals than private practice. A large proportion of our hospital surgical deaths arises from them, while in private they are rare. The reason here is obvious—the air of the hospital debilitating the constitution. Third, the more severe the person's disease or injury, and the more the system has suffered, the greater is the liability to these affections. This is almost a corollary on the fact just stated. Fourth, the more severe the operation, the more liable is the patient to secondary inflammation. Of the forty-four cases, fourteen were thigh, seventeen leg, two shoulder-joints, and eleven arm. Not one of the amputations of the forearm was followed by secondary disease. I am well aware that these secondary inflammations occasionally follow very trivial operations and injuries. I have lost two cases of fistula in ano from this cause, and more than one injury of the feet and hands, but these were all in hospital, and were probably attributable to the atmosphere. Fifth, there is a strong tendency in surgical disease to localize itself in some important internal organ, especially the lungs; and this is most apt to occur in the feeble and exhausted—in many cases I believe a very short time before death. I believe that a careful examination would shew that the majority of those patients who die of discharge and exhaustion exhibit these affections, and that they are most liable to occur when the discharge is most profuse. I am well aware that profuse discharge[*], or even an open sore[†], is by no means necessary to their formation; but I feel satisfied that a statistical investigation would shew that a great majority occur during the continuance of profuse unchecked suppuration. In cases where there was no discharge, and little, if any, pus secreted, I have remarked the presence of lobulated pneumonia without deposit of pus.

I have introduced the above remarks principally with the view of making them bear on what appears to me a retrograde movement in the treatment of stumps of late years becoming fashionable—union by the second intention—a proposal sanctioned by the hope of preventing secondary inflammation after amputations. If the above statements are correct this method of treatment rests on very false principles, and cannot be too soon reconsigned to that oblivion in which, in Great Britain, it slumbered for so many years. I believe in all cases union by the first intention, by avoiding the risks of a supurating stump, diminishes "pro tanto" the dangers of an attack of secondary disease.

To this view it is objected that many patients who suffer amputation for disease profusely suppurating, die within a few days of the performance of the operation, apparently in consequence of the sudden check given to the discharge. In a great many of these cases I am convinced that the secondary inflammation existed before the operation, and that it was the failure of strength, caused by these latent inflammations, which induced the surgeon to perform an operation which their presence rendered altogether futile. I do not think we are yet sufficiently alive to the impropriety of amputating after the occurrence of rigors. Almost as certainly as we do amputate our patient dies. We are still less alive to the impropriety of amputating after some symptom previously mild has become suddenly aggravated. It is too much the practice to wait for some occurrence so urgent as to *demand* removal of the limb. Now the very urgency of the symptom, especially if of sudden accession, is often the strongest of all reasons for not amputating, as it too frequently depends on secondary disease, which will certainly destroy our patient whether we amputate or not.

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[*] Case of fistula in ano nearly healed.

[†] Paterson—abscess of prostate, 18th July, 1834.

Experience has confirmed my objections to union by the second intention. The cases in which I tried it, certainly few in number, died of phlebitis and secondary inflammation in their most acute forms. Every operating surgeon knows that no amputations so readily unite by the first intention as those of the forearm. In our tables they have been entirely exempt from secondary disease. Again, amputations "below the knee" seldom unite without suppurating. By the tables, when performed "for disease," they are our least successful operations.

These remarks are not intended to apply to chronic suppuration of many months' or years' continuance, in which, as in the case of old ulcers of great extent, amputation is occasionally performed for the removal of an inconvenience, not for the preservation of life.

But even in these an artificial discharge, by seton or caustic issue, is infinitely preferable to "union by the second intention." I may add that our experience of the results of amputations in these cases has not been such as to tempt to a repetition of the operation.

OPERATION FOR SPINAL DISTORTION.

To the Editor of the Medical Gazette.

SIR,

THE following account contains a few particulars of an operation which I performed on Wednesday last, the 25th inst., for the relief of spinal distortion. Should you think it sufficiently interesting, as the operation is as yet somewhat novel, I should feel obliged if you would do me the favour to insert it in your next number.—I am, sir,

Your obedient servant,
JAMES WHITEHEAD.

133, Oxford St., Manchester,
Nov. 30th, 1840.

Mr. W. P. J., a young gentleman twenty years and eight months old, son of Major J., of the —th regiment, was placed under my treatment, in February last, for a deformity of the back. He was then suffering from severe palpitations, which became alarmingly aggravated by exercise even of the most moderate kind. His general health was also in a very deranged state, the appetite being impaired, tongue foul, sleep unsound and unrefreshing, pulse weak and irregular, and his strength so feeble that it was with the greatest difficulty he could walk from the office in which he was employed to my house, a distance of about three-quarters of a mile. By the aid of medicines his health was in a short time restored, and he was soon in a fit condition to be put upon certain gymnastic exercises, with a view to relieve the distortion. In two or three weeks more the palpitations had entirely left him, and his strength was greatly improved, so that he could bear to exercise himself actively in the gymnasium for an hour together, or walk six or seven miles without feeling overfatigued. From the time when he commenced the exercises (about the middle of March) to the end of August, his stature had increased one inch and a half. Since then the exercises have been partially, or almost entirely, omitted, and the improvement has ceased to go on. Indeed I fear he has a little diminished in height since the beginning of Oct. I suggested to him a few weeks ago the operation of division of some of the muscles of the back as likely to afford some relief. By partially or totally destroying for a time the action of those muscles which maintain the spine in its present position, we should at least be enabled to employ artificial means with a greater chance of success, and also bring into more efficient play certain other muscles which may assist in rectifying the evil. I explained to him that whatever benefit might accrue from the operation could not possibly be immediate, as the spine, from its anatomical conformation, could not be as effectually acted upon by mechanical means, even when its restraints are removed, as one of the joints of the extremities: still, as the exercises had already produced such a decided improvement, that there were strong grounds for believing that much might be anticipated from the after-treatment. He consented with great willingness to have the operation performed, and hoped it might be proceeded with as soon as possible.

The deformity consists in a simple lateral curve to the right side, of considerable extent, and involving more than half the spinal column, commencing at the sixth cervical, and terminating at the second lumbar vertebra. A cord extended between these two points would complete it into a segment of at least two-fifths of a circle. It is not, however, quite regular in its form from beginning to end, the curve being more decidedly expressed above than below. The back of the chest on the left side is much flattened, the ribs being nearly horizontal in direction, and their angles scarcely perceptible; while, on the opposite side, the angles are prominent, and each rib so rotated upon its attachment at the side of the spine as to bring its body into a very oblique direction—almost approaching to the vertical, at its back part. The angles of the ribs appear to be somewhat more bent than natural; but this is not so certain. The whole together, and the scapula, which is raised above its natural position, form a very considerable protuberance; and this is increased in appearance by the neck being bent forwards and to the opposite side. The sulcus for the lodgment of the dorsal muscles is obliterated on the right side, and the muscles themselves so attenuated as to be almost imperceptible; while those on the left are full and firm, and more than ordinarily developed. The muscular system in general is strong and well expressed. The deviation from its normal shape of the other parts of the chest corresponds in a measure with those already alluded to. The right side in front projects, and is a little elevated; the left is depressed, and the sternum approaches to a parallel direction with the dorsal spine.

The disease was first noticed in a slight degree about eight years ago, but did not create any particular alarm among his friends for three or four years after its commencement, as he was all this time in delicate health, the restoration of which it was thought would entirely rectify the deformity. It was observed to make more rapid progress during the three following years of close application to study at College; and his present sedentary employment in the study of the law has been rather favourable than otherwise to its increase. Another circumstance ought to be mentioned as having in all probability contributed—perhaps may have originally determined the direction of the curvature, namely, regular sword exercise, which formed a part of his early education, as he was then intended for the army. This, of course, was suspended as soon as the evil was discovered. He has been under medical and surgical treatment ever since the manifestation of the above-noticed symptoms, having consulted several eminent practitioners both in London and elsewhere. In the early stage of the disease he suffered much from pain in the head, for which he was repeatedly leeched and blistered.

The objects which I had in view by the operation were to release the concavity of the curved part of the spine from the action of some of those very powerful muscles already alluded to, namely, the sacro-costalis (sacro-lumbalis) and longissimus and spinalis dorsi; and by this means to take off the most powerful resistance to the action of others which may be brought into play directly upon the diseased part: as the trapezius and rhomboidei of the same side; and also to enable one to operate by artificial contrivance with better effect.

The operation was performed in the presence of Dr. Pendlebury, one of the physicians, and Mr. Fawdington, one of the surgeons, to the Royal Infirmary, and three other medical gentlemen. The patient was seated in the reversed posture on a low-backed chair, the body bent forwards, and the arms and head leaned over the back of the chair. A portion of skin opposite the seventh or eighth dorsal vertebra was pinched up and divided, and the shining fascia at once brought into view. A straight sharp-pointed bistoury was then passed between the skin and fascia as far as the spine, and the mass of muscle divided by depressing the instrument slowly and carefully, and at the same time withdrawing it. The bistoury was then again introduced through the same opening in the skin, and passed outwards on the surface of the corresponding rib, so as to divide the attachment of the sacro-costalis as well as the other slips of it going to the ribs above. The muscular fibres separated with a distinct snap, audible to every one present. Mr. Fawdington's expression was, that the sound set his teeth on edge. It was like the separation of a tight bow-string composed of a fascicle of strong threads. Another small incision was made opposite the third vertebra of the same region, and the muscles coming down from the neck divided in the same manner. No outward incision was made at this part. The external openings were closed by slips of plaster, and a compress of lint applied and secured by a bandage. The patient then got up and walked to bed with facility. He was placed on his back upon a hard mattrass formed into an inclined plane. There was considerable difficulty of breathing experienced immediately after the operation, arising, as was afterwards ascertained, from spasm of the posterior intercostal and dorsal muscles of the right side. This was relieved by a powerful anodyne draught, and he continued tranquil and easy two or three hours. I was not able to see him again until seven hours after the operation, when I found the difficulty of breathing very urgent, and was told it had been so for three or four hours. On placing my hand on the back part of the chest, near the spine, on the convex side of the curve, the intercostal muscles were pointed out by the patient as being the principal seat of the pain he complained of, and the erectores spinæ of the same side were more tense than I had before felt them. The latter, he told me, had been affected by cramp, which had several times been very severe, ever since the operation, and also with a constant quivering motion, which could be very distinctly felt by the hand when placed upon the part. A grain of opium was ordered to be taken immediately, and to be repeated every three hours if needful. He passed a very comfortable night, and on the following morning the spasms returned in the same manner, and continued all day; but not so severely as before. A grain of opium was prescribed, to be taken at bed-time. On the third day, as the patient was quite comfortable, and felt no pain in the parts, even when he raised himself into the sitting posture, which he could do with perfect ease, a little gentle traction was exercised on the spine, which showed that the column was certainly flexible, and promised fair for at least a partial, if not a complete restoration. This was done by fixing the pelvis and upper part of the chest by bandages, towards the side of the convexity, and bringing the rhomboidei to act on the hollow of the curvature, the patient lying in the prone position. The same effect was produced by a person being seated on a chair, level with the bed, and pulling at the left arm, having at the same time one foot fixed against the side of the pelvis, and the other in the axilla. During the last two days friction with salt and water and the hair glove has been practised over the dorsal muscles of the right side, which continue to act in the manner before mentioned, and increase in size. The patient's health has not suffered in the slightest degree.

The progress of the case shall be detailed hereafter if deemed of sufficient interest.

SLING FRACTURE-BED.

To the Editor of the Medical Gazette.

Sir,

Among the various contrivances introduced within the last few years for the treatment of fractures, there is one which I feel convinced has not yet been properly appreciated by surgeons: I mean that invented by Mr. Thos. M. Greenhow, one of our most intelligent surgeons in this town. This sling fracture-bed possesses some immense advantages over those now in general use. I shall give a few rough notes of two cases I attended with my friend Mr. A. Davison, of Cramlington, and who authorizes me to express his unqualified approbation of the instrument. I shall then make a few remarks, from which I hope to show that this splint or sling fracture-bed really has many advantages not to be found in other inventions of a similar nature.

Case I.—Mathew Cleugh, aged 13, received, June 8th, 1840, while at work in Cramlington Colliery, a compound fracture of left leg, about midway between the ankle and knee. The fracture was extremely oblique, and a considerable portion of tibia was forced through the wound. He was immediately seen by Mr. Davison and Mr. French, who reduced the fracture, and placed the leg in one of M'Intyre's splints.

The case at first did well, but we soon found that it was impossible to prevent contraction; and though extension was repeatedly made we could not maintain the bones in apposition. A period of about eight weeks was spent in unavailable attempts to promote union and prevent contraction, though every thing that afforded a chance of producing the desired effect was tried. I then determined, as a "dernier ressort," to give Mr. Greenhow's "fracture-bed" a trial; and, in order that it might be properly applied, requested him to go out with me and superintend the application, which he very kindly did.

The leg at this time was a good deal swollen and inflamed, the inflammation being evidently of an erysipelatous character. The wound was covered with high flabby granulations, and looked exceedingly unhealthy.

On the third day after the leg had been placed in the "fracture-bed," there was a remarkable change in its whole appearance: the high granulations were much less, and the swelling and inflammation greatly abated. From this time the leg rapidly improved, the discharge gradually ceased, the inflammation disappeared, and the wound healed. In five weeks we removed the apparatus, as firm union had evidently taken place.

On the 23d of September (when the above notes were made) the boy was walking about on his crutches in excellent health; and on the next accurate measurement I was unable to detect the slightest shortening when compared with the other leg.

Case II.—Mathew Beald, æt. 11, had his left tibia fractured about three inches above the ankle. The accident occurred on Wednesday, Oct. 28, 1840, and was occasioned by a stone falling upon him from the roof of the mine. There were extensive lacerations on the anterior and posterior parts of leg immediately around the fracture.

The limb was on the following day placed in Mr. Greenhow's fracture-bed, and has continued to do well up to the present moment. Firm union has taken place, the wounds have almost entirely healed, and the boy's health, with the exception of a slight attack of scarlatina, has not in any way suffered.

Remarks.—Every one who has read Case I. must (I think) agree with me that Mr. Greenhow's splint was in the highest degree beneficial; but I will go further, and state that I attribute the preservation of the limb to the use of this treatment, as the boy's health was beginning to succumb under the irritation the riding of the fractured portions of bone had produced, and the great discharge of matter. All bad symptoms, however, soon ceased, when extension and perfect rest of limbs were obtained.

In Case II. I am not aware of any other contrivance which would have enabled us to dress the wounds, and yet allow the leg to remain in the same position. We have thus been able to clean and dress extensive lacerations during one entire month, and yet the limb remains in the identical position in which it was originally placed. Having mentioned this fact I need not use any argument to shew the ease and comfort experienced by the patient in this mode of treatment.

If this instrument possessed no other advantage, it would still be found to be a most valuable one to the surgeon who lives at a distance from his patient; for having once fixed the limb in it there is little fear of displacement. I have also found that the friends might with perfect safety be allowed to dress the wounds, and thus save many long and disagreeable journeys.

I fear, sir, that I have already occupied too much space in your valuable publication, and therefore will not extend my observations. The importance of the subject must be my excuse for their present length.—I am, sir,

Yours respectfully,
H. G. Potter, F.L.S., &c.
Surgeon.

Newcastle-upon-Tyne, Nov. 26, 1840.

UTERINE HÆMORRHAGE.

To the Editor of the Medical Gazette.

SIR,

ON reading the remarks of Mr. Adams on uterine hæmorrhage in your journal of the 30th October, it forcibly struck me that I had met with a similar case. If you consider it worth inserting, you will oblige

Your obedient servant,
W. B. PARKES, M.D.

42, Carnaby street, Golden square,
Nov. 28, 1840.

In October last a friend of mine was called to a married woman (aged 26, of good constitution, who had borne three children before), on account of sudden and frequent gushes of hæmorrhage in the eighth month of pregnancy. She retired to bed about ten o'clock perfectly well, awoke about three by sharp pains in the back and stomach, and found, to use her own words, that she was swimming in blood. My friend applied the usual immediate remedies on such occasions, thereby arresting the return of the hæmorrhage for three hours, at which time it came on again to an alarming extent. He then requested me to see the case with him: I did so, made an examination, and found what Mr. Adams has described in the following words:—"Instead of finding the os uteri in its ordinary state I discovered a large mass of substance, which from its feel I took for a portion of the placenta." My friend made another examination, and concurred in the opinion that it was a case of uterine hæmorrhage, from the placenta being situated over the os uteri. Knowing the general fatal results of such cases, and as the flooding had in a degree subsided, I suggested the propriety before we proceeded further of taking the opinion of a medical man who resided in the neighbourhood, who had been in practice some twenty or thirty years. He made a careful examination, and confirmed my friend's and my own opinion that it was a placenta case, of which he felt not the least doubt. My friend considered it necessary to call in the assistance of that excellent practitioner, Dr. Robert Lee, of Golden Square; he immediately attended, and after a careful examination, gave it as his opinion that the placenta did not present, and what we had taken for placenta was a coagula of blood. Dr. Robert Lee (to our satisfaction) decided that the operation of turning was not at all necessary, and if the membranes were ruptured the case would do well. The membranes consequently were ruptured; labour pains came on, and in six hours she was safely delivered of a dead child.

ANALYSES AND NOTICES OF BOOKS.

"L'Auteur se tue à alonger ce que le lecteur se tue à abréger."—D'ALEMBERT.

Practical Observations on the Pathology and Treatment of Stricture of the Urethra, with Cases. By ROBERT WADE, Senior Surgeon to the Westminster General Dispensary, &c. London, 1841. 8vo. pp. 149.

OUR author has divided his book into seven chapters. The first consists of general observations; the others are on the pathology of particular kinds of stricture; the symptoms of stricture; the treatment of strictures of the urethra; directions for the introduction of sounds and catheters; and the consequences of stricture. The work concludes with an account of twenty-eight cases successfully treated with the potassa fusa.

The following is Mr, Wade's method of applying this remedy:—

"Before using the potash, a bougie should be passed down to the stricture, that its distance from the orifice of the urethra may be correctly ascertained. A small piece of potassa fusa should be inserted into a hole made in the point of a soft bougie. The eighth part of a grain is the smallest and a grain the largest quantity of the potash I am in the habit of using; but it will rarely be necessary to exceed the sixth of a grain. It will be well to make two notches in the bougie containing the potash; one, marking the exact distance of the stricture; the other, an inch beyond; as, very probably, on introducing the armed bougie the first mark may be concealed within the urethra, from the penis being more stretched than when the measurement was taken. The bougie must be well moulded round the potassa fusa, so as to prevent the alkali from projecting; and it should be so placed that it may be more applied to the upper than the lower part of the stricture, for obvious reasons. Armed bougies should be well rounded at their points, to guard the urethra from the action of the potash before it reaches the stricture. In very bad cases it may be advisable occasionally to use the potassa fusa in the recumbent position, as it will then not only be best applied to the surface of the stricture, but be most likely to penetrate its texture, which in old and hard obstructions is very desirable. The bougie should, of course, be well oiled previous to its introduction."—p. 44-5.

In many chronic cases the potash may be used every second or third day; when greater irritability is present, four days should intervene. For the cases in which it may be used with advantage, we refer our readers to the treatise.

Mr. Wade's book bears the stamp of sober good sense; and shews that he has not allowed his opportunities to pass away unimproved.

Treatise on the Ear; including its Anatomy, Physiology, and Pathology; for which the author obtained a gold medal in the University of Edinburgh. By Joseph Williams, M.D., &c. London, 1840. 8vo. pp. 255, with six plates.

This treatise contains an account of the anatomy and comparative anatomy of the ear; and after devoting some space to observations on sound, and the functions of the ear, our author has usefully filled more than 150 pages with the details of its pathology. Dr. Williams's book shows a sound judgment, as well as extensive reading, and encourages us to hope that he will devote himself to this branch of practice, and enlarge the bounds of our knowledge in a domain which has hitherto been chiefly occupied by puffers and advertisers. Why should we not rival the Kramers and Itards of the continent? Dr. William's essay cannot be read without profit.

A Probationary Essay on the special Pathology of the Accessory Organs of Hearing, &c. By James Mercer, M.D., &c. Edinburgh, 1840. 8vo. pp. 133.

Our author has divided his essay into three parts; the first containing the general anatomy, pathology, and treatment of diseases of the external meatus; the second, the general anatomy, pathology, and treatment of the diseases of the membrana tympani; and the third, the anatomical structure, pathology, and treatment of the diseases of the tympanum and its appendages, especially the Eustachian tube.

Dr. Mercer's treatise has been carefully drawn up, and does credit to his judgment as well as to his industry. We trust that he will not remain content with this preliminary step, but will energetically resolve to add and add largely to the stores of professional knowledge in this interesting branch of our art. We wish, in particular, that he would investigate the statistics of the diseases of the ear—a department for which Dr. Mercer's clear style and impartial criticism especially qualify him.

MEDICAL GAZETTE.

Friday, December 4, 1840.

"Licet omnibus, licet etiam mihi, dignitatem *Artis Medicæ* tueri; potestas modo veniendi in publicum sit, dicendi periculum non recuso."
Cicero.

SOME DIFFICULTIES IN FORENSIC MEDICINE.

The very remarkable case of Madame Laffarge must have awakened every one's attention to the difficulties which beset forensic medicine. Orfila sees a film of arsenic, where other observers would perhaps only see a film; and Raspail, the staunch controvertor of certainty in legal medicine, is ready to obtain as much arsenic from any old bit of furniture! However this may be, it is clear that in medico-legal chemistry the certain test of 1820 is no longer the certain test of 1840; and who can answer what this will be in 1860? Until chemistry becomes a fixed science, and the action of every possible combination of substances has been tried, how can we be sure of our facts, and confidently prove a negative.

Every story, says the vulgar proverb, is good, till another is told; and every test is valid, till a fallacy is discovered in it. Dr. Christison thinks (or thought, some years ago) that the deep-red colour struck by the permuriate of iron with meconic acid was sufficient proof of the presence of opium. No! says Mr. Pereira, for two other substances, which are likely to be met with in the alimentary canal, produce the same effect, namely, mustard and saliva *.

Again, the oil of pimento "produces a red colour with nitric acid, and a blueish green one with the tincture of muriate of iron of the Pharmacopœia, thus agreeing with morphia in two properties †."

The saliva produces this effect from containing sulphocyanuret of potassium. On a trial for poisoning, in 1829, Dr. Ure was positive that the stomach contained opium from the *characteristic* colour produced by the perchloride of iron; and when the cross-examiner urged this chemical objection, he "thought it merely a *ruse de plaideur*."

Can human blood be distinguished from other red spots, or from the blood of animals? The affirmative has been maintained, but it is highly doubtful. According to Raspail, Orfila asserted that blood might be distinguished from red spots produced by any other substance; but Raspail showed spots made with the albumen of a pullet's egg, in which he had steeped a small bag filled with madder; and the effects produced by the reagents mentioned by Orfila were exactly the same as if the spots had been blood.

Orfila then discovered a method of distinguishing spots of blood from these artificial stains; for the former, after being boiled, appeared greenish by reflection, while the colour of the latter remained unchanged. To this Raspail replied, that tannin and a salt of iron might be added to the artificial spot in such a manner that they should not act on each other till after boiling. What answer Orfila made to this we know not. Nevertheless, Barruel soon afterwards went a step beyond Orfila, and asserted that sulphuric acid, when poured on blood, elicited an odour by which the animal from which it had been taken might be distinguished. Raspail the quick soon brought forward his answers to this bold assertion, and showed that it was easy, by various admixtures, to give the odour of one kind of blood to another. Besides which, Barruel having experimented on the blood of a small number of animals only, reasoned from too slender an induction.

The microscope might seem to afford a prospect of distinguishing the different species of blood, but at present this branch of knowledge is in its infancy.

The celebrated trial of Mr. Angus for the murder of Miss Burns is a strong proof of the difficulty of the science of forensic medicine. Was the deceased poisoned? She died after having suffered for about fifty hours from pain, thirst, and vomiting; and on dissection a large perforation of the stomach was found, with pulpiness of its coats, but no traces of inflammation about this part. The learned and candid Beck appears to have altered his opinion concerning this case, for in the fifth edition of his Medical Jurisprudence he says, "With our increased knowledge on the subject of diseases of the stomach, it becomes at least possible that the morbid appearance in question may have been the result of ordinary illness." (p. 753, Note.)

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* MED. GAZETTE, vol. xviii. p. 852.
† Ibid. p 930.

The moral evidence against the prisoner was strong, and if we suppose him to have given the deceased a large dose of mineral poison to produce abortion, all the circumstances of the history will be coherent; but medical witnesses must beware lest they colour their chemical or anatomical evidence to suit the other facts.

It is almost unnecessary to direct the attention of our readers to the treatises of Dr. William Hunter and Dr. Cummin on Infanticide; the former is a defence of the prisoner, the latter will furnish arguments for the prosecution; but from the natural leaning of judge and jury in such cases to the miserable prisoner, mercy and Hunter are always listened to. It must be acknowledged, too, that the evidence which was ordinarily supposed to be conclusive against the woman was in a high degree unsatisfactory; and it is very possible that the farther progress of science may throw equal doubt on the tests on which modern medical jurists rely.

We lately touched on the subject of rape; and we will, therefore, only add to the facts we then alleged—that the medical witnesses on these trials are apt to affirm that on examining the person of the prosecution they found that she had been violated. What do they mean by this? If they understand merely the signs of recent defloration, this would be intelligible; but if they mean that they can ascertain by what quantum of violence the girl's resistance was overcome, or whether she offered a real opposition to the supposed ravisher, they surely mean nonsense.

On the whole, it will be allowed that too much is expected from medical witnesses in courts of justice: it is thought that they can draw the finest line with infallible hand, and show with superhuman tact what deviation from perfect health may be called illness, and what amount of eccentricity just passes the confines of insanity.

But if juries expect too much, witnesses may also give too little. It would not be unreasonable to hope that the profession might furnish some *experts* skilled in the latest refinements of chemistry, and practically conversant with all the details of morbid anatomy. Under the name of district physicians or sugeons, such witnesses might save much annoyance to those who are overwhelmed with the practical details of our art, and while they cleared up many a doubtful point, would reflect glory on the profession from which they were selected.

EXAMINATIONS FOR DEGREES IN ARTS IN THE UNIVERSITY OF LONDON.

We have thought it right to lay before our readers, at various times, the questions which have been proposed to the candidates for medical degrees and honours in the University of London. Every practitioner of physic is interested, directly or indirectly, in the progress of professional education, and however remote from the scene of learned strife, must be pleased to see what are the last refinements of teachers and examiners in the theory of the art by which he lives.

If medicine, however, is to maintain the rank of a learned and liberal profession, something more is required than a knowledge of the art of healing and ancillary sciences; and it will be desirable that a considerable number of practitioners shall give some proof of their general acquirements, and be able to meet the other learned professions on equal terms. Hence we apprehend that the examinations for degrees in arts in the University of London must be a subject of interest to many of our readers; but as they are not so immediately connected with the topics which we usually discuss, instead of giving the papers at length, we shall content ourselves with a brief notice of them. All the questions before us were set during the present year, and the first series consists of those which formed the pass examination for Bachelors of Arts.

The first paper consists of questions in arithmetic, algebra, plane trigonometry, hydrostatics, hydraulics, and pneumatics. They are easy and judiciously selected: only one question is appropriated to each of the last three subjects, the concluding one being, "explain the construction of the common pump."

Next follow questions on chemistry. The phenomenon of dew, the formation and principal chemical phenomena of a Voltaic circuit, and the constitution of the atmosphere of the earth, are among the topics of inquiry.

We then come to a paper of questions on animal physiology. The circulating system, respiration, the several kinds of nerves, and the uses of the retina, choroid coat, and iris, are among the subjects touched on.

Every friend to the community must rejoice to find animal physiology made a part of general education. Our hopes of the final extinction of quackery rest on the diffusion of this useful knowledge; and even the regular practitioner does not practise the worse, when subject to the enlightened criticism of the educated.*

We then have a paper on structural botany and vegetable physiology,; and then some extracts from the Antigone to be translated, with questions.

The remaining papers are on logic, moral philosophy, Greek and Roman history, and English history; extracts from Tacitus, Massillon, Goethe, and another German author to be translated into English; with English passages to be translated into French and German.

It must be confessed that this examination, which lasted four days, is, on the whole, one of great difficulty; and that any student of one or two and twenty, who could answer half the questions in each paper, must rank as a distinguished man.

Then come the examination papers for honours in mathematics and natural philosophy; and another set for honours in classics. Finally, there are examination papers in the Hebrew text of the Old Testament, in the Greek text of the New, and in Scripture History. These appear to form a separate division, perfectly distinct from the other two.

The examination for the degree of Master of Arts is divided into three "branches," namely, Classics—Mathematics—Logic, Moral Philosophy, Philosophy of the mind, Political Philosophy, and Political Economy. Three candidates were admitted to the degree of Master of Arts, one in each branch, from which it would seem that proficiency in one branch alone is sufficient to obtain the degree.

These examinations will undoubtedly be a considerable stimulus to literary and scientific acquirements. At present the number of candidates is but small, as the questions are much in advance of average attainments; but as time wears on, schools will increase in energy, and, consequently, candidates in number.

ENCOURAGEMENT OF QUACKERY.

The wise and impartial have often differed among themselves as to the quantum of discouragement which it may be advisable to inflict upon quackery. Is it sufficient to withdraw all official countenance from quacks and quack medicines, or is it the duty of the state to inflict punishment on each convicted cheat who trifles with the lives of his fellow-creatures? Much may be said on both sides of the question; and it might be urged in favour of the latitudinarians, that in a country like ours, great difficulty would practically be found in putting down impostors by force of law. Each free-born Briton claims the right of shortening his days after his own fashion, and asks why he may not effect his purpose with colocynth and gamboge as well as with gin and whisky? But it must be confessed that the executive steps out of its way to give encouragement to wrong, when it condescends to mete out the shares of booty between Filch and Bagshot, or settle which proprietor of the Syrian Elixir has the fairest right to poison the public.

Last Monday, November 30th, one

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* Anatomy and Physiology also enter into the plan of education proposed by Lovett and Collins in their late work on Chartism; and there are questions on these subjects in the lesson-cards of which they give specimens.

Barker brought his action against a certain Hollier in the Court of Exchequer. Barker sells some stuff which he calls "Atkinson's Infant Preservative;" while the defendant, not having wit enough to invent a name for himself, obtrudes a nostrum on the unwary with the same title, preceded by the words *Hollier's late* in marvellously small letters. The plaintiff obtained a verdict with a farthing damages. It strikes us that all men of sense have a right to complain that such a cause should be entertained in a court of justice. As soon as it was shewn that Howqua's tea was made up in London, the Lord Chancellor dissolved the injunction against the person who had imitated the name; and when a plaintiff comes into court as the avowed proprietor of a nostrum, it is absurd to protect him against those who wish to partake in his unhallowed gains.

ROYAL MEDICAL AND CHIRURGICAL SOCIETY.

Nov. 24, 1840.

Sir B. C. Brodie, Bart., in the Chair.

A Case of Osseous Union of a fracture of the Neck of the Thigh-bone within the Capsule. By Walter Jones, Esq., of Stafford. Communicated by Edward Stanley, Esq., F.R.S., &c.

The patient in this case, who was more than eighty years of age, was first seen by Mr. Cole, the House-Surgeon of the Stafford Infirmary, on the day succeeding to that on which the neck of the thigh-bone had been fractured by a fall. Mr. Cole applied a splint to the outside of the limb, extending from the pelvis to the foot, and bound the leg together, the apparatus being completed by a bandage round the pelvis. The patient suffered so much pain, aggravated by a troublesome cough, that he removed the splint and bandages. After having allayed the pain, and quieted the cough, however, by the aid of laudanum, Mr. Cole reapplied the bandages, and retained them in their position six or eight weeks, when the patient was allowed to get up. During the following spring and summer he was able to go about with the assistance of a stick; but, becoming the subject of chronic catarrh, he died about a year and a half after the injury had been sustained.

The capsule was found much thickened, and it became necessary to divide the shaft of the bone before the knife could be passed round the joints; so near had the trochanter approached to the acetabulum. The direction of the fracture could not be traced, or the bond of union made out, until the bone had been macerated. As the portions of capsule became loose, they were removed with the forceps, "which enabled me," says the author, "to discover, what I believe to be the case, that the fracture was within the capsule." The bone, sawn through, and a very accurate drawing of one of its sections, were shewn to the meeting.

READ ALSO,

Observations on the improper Use of Opium in England. By Julius Jeffreys, Esq.

This paper had for its objects to point out the great and alarming increase (as it appeared to the author) of opium-eating in England, and to solicit from the society some declaration which might have the effect of discouraging such practice. The author depends for his proof of the increase of opium-eating upon the Custom House returns of the quantity of the drug imported into England in each year from 1828 to 1838 inclusive; by which it would appear that a very considerable increase had been experienced—the quantity entered for home consumption in the former year having been 16,169lbs., and that in the latter 31,204lbs.

Before the society adjourned it was ordered that the Council be requested to prepare and cause to be presented to Her Majesty, His R. H. Prince Albert, and H. R. H. the Duchess of Kent, three several addresses of congratulation on the late auspicious event of the birth of a princess.

MEDICAL REFORM BILLS.

To the Editor of the Medical Gazette.

Sir,

The Medical Reform Bill lately proposed by Mr. Warburton, though it has been subjected to much discussion, appears hitherto to have remained an unsolved enigma to the acuteness of all the medical criticism that has been so liberally expended on it. Unanimous opinion seems to have regarded it as altogether a very silly piece of business, inexplicable as to its objects, and inadequate to our necessities. There is, however, a very simple key to the mystery, and a short review of the different acts of government during the last few years will afford a clear explanation of the objects intended by the directors of this otherwise incomprehensible bill. In the general politics of this country the public have been long divided into two great classes, reformers and anti-reformers. Of the agitation resulting from the frequent collision between these two classes our government has taken a shrewd and skilful advantage, in order to carry out the grand object they have long had in view, namely, that of bringing every department of public affairs under their own direct and immediate control. This system of centralization, as it is called, is the mainspring by which all government interference is influenced. For this purpose agitation is encouraged, the majority generally flattered, and the people by this means deceived into a surrender of important rights as a sort of compromise for the advantages of reform. This object is apparent in the several acts that have reference to Ireland (for Ireland is the theatre in which this experiment is now being tried), in the appointment of a stipendiary magistracy, the establishment of a powerful police force, whose ramifications extend in every direction through the country, in the corporation bill, in the poor law act, and finally in that part of Mr. Warburton's Medical Reform Bill which should invest government with the power of appointing a certain proportion of the intended medical senate, and inflicting, with discretionary powers, a most unjust general medical tax. Now, though I must acknowledge that members of our profession ought to abstain as much as possible from all interference with general politics, still it appears to me so important to our main interests at present, to have a clear idea of the principles on which the proceedings of government are based, that I feel myself justified in offering these remarks. If it be true, as I believe it to be, that these principles are not only exceedingly dangerous to the liberties of the British nation, but also, when applied to the management of our professional affairs, will place us in a state of thraldom and servitude from which we may possibly never recover—subject to the caprices of secretaries of state, and the control of men utterly ignorant of the wants of our profession—then, sir, I conceive that I need no apology for thus endeavouring to draw attention to points so material, in order that, at least, we may discuss, with our eyes open, this plan of centralization now artfully concealed under the title of medical reform.—I am, sir,

Your obedient servant,
E——.

Dublin, Nov. 18th, 1840.

MINERAL WATERS.

I ALWAYS return to the same point, which I have often mentioned already, that mineral waters form a large and quite peculiar class of natural productions and agents, and that our chemistry is far from being able to determine their composition, their value, or their worthlessness. It can say nothing more than—the analysis of the water, according to the present state of chemistry, gives the following results and products, which we allow ourselves to call educts. But then, I just ask, was the substance, which you found after analysis, really in the water, or did it arise from the analysis, and the influence of external agents necessary for the analysis; and was it, consequently, a product instead of an educt? Moreover, if these substances were contained in the water, did they exist there in the shape and form in which they are now seen after analysis; and does not more depend on the combination of the elementary substances, than on their separate nature? What a wide difference is there in the effects of the same substance under different forms—solid, fluid, and gaseous; as, for instance, in the effects of ice, water, and steam. Can we properly say that we know a substance in its living being, when we know its skeleton? And, more or less, every chemical analysis is nothing beyond this, as it gives us merely the products of processes of decompounding, that is, of destroying. For not organic bodies alone, but inorganic ones also, have their living existence. How different are the various kinds of wine! Würzburger, Hochheimer, Johannisberg, Thüringian, Burgundy! The palate of the connoisseur, and their different effects on the frame, distinguish them well enough; but to chemistry they are all wine, and not remarkably different in their elements. Granting, however, that we were to give up all this, even then we could only say that, according to the present state of chemistry, such or such a substance contains such and such ingredients. But does it follow that it cannot contain any others? By no means.—*Hufeland. Praktische Uebersicht der vorzüglichen Heilquellen Teutschlands.*

MILITARY FLOGGING.

ON the same day, on the third reading of the Mutiny Bill, Sir Francis Burdett proposed a clause to abolish the punishment of flogging in the army. I was one of only eight, including the tellers, who divided with him in support of the clause. I spoke too in support of it; and in the course of my speech I vindicated my friend Brougham, who had been accused of making a most extravagant and exaggerated statement, because he had said, on a former occasion, that, for very serious offences, it would be better to punish soldiers by shooting than by flogging them; and I mentioned what I had read a few days before in the *Transactions of the Missionary Society.* In the journal of one of the missionaries at the Cape of Good Hope are the following passages:—"July 14, 1810. A soldier belonging to the Cape regiment had been tried for desertion, and was condemned to die." It then proceeds with an account of his being attended by one of the missionaries, and his conversion previous to his being shot. "Another, who had been also guilty of desertion, and who was to receive 1000 lashes, appeared more impressed. He received but 224 lashes, the surgeon judging that he was not able to bear more, and thus he was for this time freed. Being brought to the hospital, he remained there some weeks, and died. Brother Read, visiting him before his dissolution, gave us likewise hope of his salvation." *(Transactions of the Missionary Society*, vol. iii. p. 392).

The facts are here mentioned without any observation, and are preserved only incidentally, and as necessary to state what is the business of the journal, the successful spiritual labours of the missionaries.

We have here, for the more aggravated crime, a criminal simply deprived of life; and for the slighter offence, another put to death with exquisite tortures, and by his sentence doomed to suffer four times as much misery as God had given him a capacity of enduring. Who can doubt that in this instance, and in many more which have occurred, a sentence of death would have been a sentence of mercy?—*Sir Samuel Romilly's Diary*, March 1812.

EXCESSIVE BLEEDING.

Thus we find a great many errors committed in prescribing for this sort of people, upon the presumption that their robust constitutions will bear stronger remedies than the inhabitants of towns. I am oftentimes moved with compassion, when I see the poor country-people brought into the public hospitals, and committed to the care of young physicians just come from the schools, who utterly exhaust their strength with strong cathartics and repeated phlebotomy, without any regard to their being unaccustomed to strong medicines, and enfeebled with labour and fatigue. And 'tis for this reason that many of these poor wretches choose rather to die peaceably in their country huts, than to lose their lives in the hospitals after the oppression of bleeding and physic. In *Campagna da Roma*, as soon as reaping is done, the hospitals of Rome are crowded with reapers and day-labourers; and 'tis a doubtful question whether the surgeon's lancet, or the sickle of death cuts off most reapers.—*A Treatise of the Diseases of Tradesmen.* Written in Latin by Bern Ramazzini, Professor of Physick at Padua, and now done into English. London, 1705.

HOW TO IMPROVE WINES.

Weak wines, and those that have been too long fermented, are very apt to become sour; but the acidity may be corrected by the addition of sugar; or more effectually by neutralizing the acid. For this purpose the alkalies and alkaline earths, especially lime, have been employed. It was formerly the practice to use the acetate of lead to destroy the acidity in weak wines, but this murderous practice has long since been laid aside [?].

Ropiness may be got rid of by exposing the bottles to the sun and air, by adding a small quantity of vegetable acid, and by fining. The *mustiness* and other ill flavours communicated by the casks or cork, may sometimes be removed by agitating the wine in contact with the air, or by the introduction of common carbonic acid gas, by pumping.—*Miss Burnett's Illustrations of Useful Plants*, September, 1840.

ROYAL COLLEGE OF SURGEONS.

LIST OF GENTLEMEN ADMITTED MEMBERS.

Friday November 27, 1840.

E. Goodeve.—F. Buckell.—J. Willmer.—J. S. Baly.—S. Sayer.—N. Burlinson —J. B Nevins. —J. A. Blagden.—G. L. Longheed.—J. Brett.

APOTHECARIES' HALL.

LIST OF GENTLEMEN WHO HAVE RECEIVED CERTIFICATES.

Thursday, November 27, 1840.

R. Pitt, Worcester.—H. Veasy, Huntingdon. —A.F. Macaulay, Halifax.—E. Booth, Liverpool. —J. Mason, Wilmslow, Cheshire.—J. Salt Besly, Stafford.—T. Cahill, 4, New Palace Yard, Westminster.—J. Mayne, Lanarkshire.

METEOROLOGICAL JOURNAL.

Kept at Edmonton, *Latitude* 51° 37′ 32″ *N.* *Longitude* 0° 3′ 51″ *W. of Greenwich.*

Nov.		Thermometer.		Barometer.	
Wednesday	25	from 27	to 45	30·28	to 30·33
Thursday .	26	22	41	30·36	Stat.
Friday . .	27	21	38	30·30	30·31
Saturday .	28	21	35	30·30	30·24
Sunday . .	29	19	35	30·20	30·12
Monday . .	30	30	50	30·00	29·99
Dec.					
Tuesday .	1	48	56	29·88	29·95

Wind N.E. on the 25th, and two following days; North on the 28th, and morning of the 29th; afternoon and evening of the 29th East; since S.W.

On the 25th and two following days generally clear; the 28th and 29th foggy; the 30th ult. generally overcast, a few drops of rain fell during the afternoon; the 1st inst. generally cloudy, rain in the morning.

We have, as on the 16th ult. again to remark upon the extraordinary change in the temperature, viz. on the 29th of November, and following day, an increase of thirty-one degrees.

Charles Henry Adams

Wilson & Ogilvy, 57, Skinner Street, London.

THE
LONDON MEDICAL GAZETTE,
BEING A
WEEKLY JOURNAL
OF
Medicine and the Collateral Sciences.

FRIDAY, DECEMBER 11, 1840.

LECTURES
ON THE
PRINCIPLES AND PRACTICE OF PHYSIC,

Delivered at King's College, London,

BY DR. WATSON.

LECTURE XII.

Varieties of Inflammation; acute and chronic; latent; specific. Scrofulous inflammation. Tubercles. Relative frequency of scrofulous disease in different organs. Signs of the strumous diathesis.

WE have now, gentlemen, considered the phænomena of inflammation, local and general: its symptoms and its events; and the indications of these afforded by the state of the system at large: and we have surveyed the principal tissues of the body, and observed the modifications and peculiarities to which the process of inflammation is liable, according as it is situated in the one or the other of those tissues.

Acute and chronic inflammation.—There are still some varieties of inflammation; and some epithets applied to inflammation; which require to be explained.

Acute, and *chronic*, inflammation: these are words perpetually in our mouths. I have frequently employed them already. What do they mean? Is acute inflammation different from chronic in *kind?* No: they differ only in *degree.*

When the disease runs its course rapidly, and is attended with much general as well as local disturbance, it is said to be acute. When, on the other hand, the local and constitutional symptoms are less violent, and the inflammation runs a longer course, its phænomena following each other in slower succession, it is said to be chronic. The process is the same, but its features are less strongly expressed. The disease passes through similar stages in both cases, but it travels at a different pace. The characters, then, of acute inflammation are intensity of symptoms and rapidity of progress: and the characters of chronic inflammation are mildness of symptoms and slowness of progress. Inflammation can scarcely be very violent, and at the same time of very long duration. When violent it has been likened (by Mr. Lawrence, whose language I have here adopted,) to a fire, which soon burns itself out. It may, however, be mild in its symptoms, and yet quickly over. The two terms acute and chronic are not directly opposed to each other: acute has more relation to the intensity, chronic to the duration of the disease; and some term is wanted — although it is hardly worth seeking for — to denote such a degree of inflammation as exists in a pimple; which is neither severe nor long continued.

Now, in respect to intensity and duration, there are almost infinite shades of difference in different cases of inflammation; and the same difficulty occurs here which always occurs when general terms are employed to express mere differences of degree. We feel no uncertainty or hesitation about those cases which occupy the two extremes of the scale; but with regard to those which lie in the middle we are often at a loss. To meet this difficulty some pathologists have invented a third term, viz. *sub-acute* inflammation, intending thereby to designate cases which hold an equivocal rank; which are neither decidedly acute nor plainly chronic; in which the inflammation may run a brief course, and be attended with a certain degree of fever; but attains no great intensity, effects no profound changes, and does not require very energetic remedies to control it.

You must not suppose that, because chronic inflammation is attended with less violence and disturbance, it is necessarily on that account less dangerous or destructive than acute. The latter is commonly more under the influence of remedies than the former: it is usually soon brought to an end: whereas chronic inflammation is often obstinate and abiding, and leads to very serious changes in the part upon which it fastens. Speaking generally, it tends to thicken and indurate when it is situated in the *interior* of organs, and to the effusion of pus when it affects *membranes*. It is more common in weakly and debilitated persons than in others: but we must not forget that such persons are also very liable to acute inflammation.

Chronic inflammation is not unfrequently a *sequela* of acute inflammation. And that the two merely differ in degree, and not in kind, is evident from this: that acute inflammation may sink or subside into chronic; and that, on the other hand, chronic inflammation may readily be aggravated into acute.

There is another distinction of inflammation into *active* and *passive*, which is less intelligible. I believe that they who use the term passive inflammation intend to signify by it that languid and sluggish kind of inflammation which is apt to occur under the same circumstances, and in the same conditions, with passive *congestion*. When the granulations of an ulcer are in that state in which they may be made brighter, smaller, and healthier, by the application of a stimulus: when the blood-vessels of the eye are left, after acute inflammation, turgid and tortuous; and that condition is improved, instead of being worsened, by the use of a stimulating lotion: in such cases as these, some persons would say there was passive inflammation. But I see little difference between this and chronic inflammation; nor do I know any difference between *active* and *acute* inflammation.

Latent inflammation.—The term *latent* inflammation is one of modern introduction. It is applicable to those cases in which internal inflammation runs its course silently, insidiously, and unperceived; without the usual warning tokens of its presence; without its more striking and prominent signs. Pneumonia, going on to disorganization of the lung, may arise, proceed, and even prove fatal, without any of the symptoms which ordinarily announce that disorder: without notable cough, or obvious dyspnœa, or complaint of pain, or the expectoration proper to pneumonia. And the same is true of other inflammations. We discover, with surprise and horror, the traces of their operation, when we come to examine our patient's dead body.

This is a most important form of inflammation; for though it does not declare itself to ordinary observation, neither does it occur absolutely without symptoms: but it requires that the symptoms should be looked for. The *auscultatory* signs of pneumonia, all those symptoms which are furnished by the physical condition of the affected organ, are present, and speak as clearly as in the more flagrant cases.

Latent inflammation is apt to creep on during the progress of certain disorders, whereby it is modified and masked. It belongs to those states of the system in which the sensibility is dull, and the vital powers languid. In continued fever not only have I known the lung pass into suppuration, when the existence of pneumonia had been unsuspected; but I even have seen one case in which that usually torturing accident, perforation of the bowel, took place, with the escape of its contents into the cavity of the abdomen, and extensive peritonitis—yet the patient expressed no sense of pain, and the inflammation was revealed, while he continued to live, by no intelligible symptom.

Inflammation of this insidious and lurking character is most to be apprehended in the aged, in those who are habitually intemperate, and in persons of sluggish temperament. It sometimes occurs during convalescence from acute diseases.

Specific inflammation.—Besides the varieties which have been mentioned in degree, there *are* also differences in *kind* among inflammations. What I have been speaking of during the preceding lectures I have called common inflammation. It is the *most common* form in which that process displays itself. All persons are liable to it; and that again and again. None are at any time privileged from its attacks. But there are several forms of inflammation different from this, which are called *specific*. There are various forms of specific inflammation affecting the skin, discriminated from each other by the local appearances they exhibit, and by the constitutional disorder which attends them. The rash, and the fever, of measles, are very unlike the rash and the fever of scarlatina; and both differ remarkably from those of small-pox, the eruption of which consists of little phlegmons. In each of these diseases the application of a specific poison is required for its production: and whereas common inflammation has a tendency, when once it has happened, to happen in the same part again—to *recur*—these forms of specific inflammation never, or almost never, occur more than once.

There is again the gouty inflammation—differing from common inflammation in several signal respects; in the production of chalk-stones; in its attacking those who are descended from ancestors who have had the disease, and scarcely any others. Then there is rheumatic inflammation, cousin-german to the gouty, yet distinguishable from it. And another variety of inflammation is that which arises from the introduction of the syphilitic poison into the system.

Scrofulous inflammation.—Of the specific forms of inflammation now adverted to I shall speak when I come to consider gout and rheumatism, and the contagious exanthemata, as distinct diseases. But there is one variety of inflammation—I mean the *scrofulous*—which meets us on every side; and is apt to affect so many parts of the body, and so great a number of persons; and has so fatal a tendency in most cases; that it cannot be left out of the account that I have been desirous to give you of inflammation in general.

Scrofulous or strumous inflammation (for struma and scrofula are convertible terms) is a *slow* process; it falls therefore within the class of *chronic* inflammations. It is not attended with much pain, or heat, nor for some time with much change of colour; and the redness which does accompany it has often a livid or purplish tinge.

These, however, are the negative properties of merely chronic inflammation. But *suppuration* at length occurs, which also lasts long: and the pus formed is peculiar and characteristic. It is not homogeneous or smooth, but consists partly of a thin serous whey-like fluid, and partly of fragments of a substance resembling curd: and the ulceration that ensues is marked by corresponding peculiarities. The ulcers are indolent; show but little disposition to heal. Scrofulous inflammation, compared with common, or what is called healthy inflammation, is in general but little influenced by remedies.

Tubercle.—Besides this scrofulous *inflammation*, it is necessary that I should now direct your attention to another form of disease, which is likewise properly denominated scrofulous. It is marked by the appearance, in various parts of the body, of what are called *tubercles*. These tubercles are masses of unorganized matter—also resembling curd or new cheese, more or less; but of various shapes and sizes. They suffer gradual changes; soften or break down; undergo a sort of suppuration; and the softer matter into which they thus (as it were) melt, has the characters that distinguish the pus of a scrofulous ulcer or abscess.

Now *tubercles* and scrofulous *inflammation* occur very continually in the *same individuals*: and what is remarkable, although they affect a very large portion of the whole human race, and conduce more often and surely than any one thing else to shorten the natural period of human life, yet they belong, almost exclusively, to certain *classes* of persons. We can tell, beforehand, that such and such persons are likely to become affected with scrofulous inflammation, or with tubercles: and we say of those persons that they have the scrofulous *diathesis*. I will not positively affirm that these forms of disease *cannot* be produced in any or in all persons: but this much is certain—that some persons are particularly prone to them; fall into them as it were spontaneously; on the operation of very slight external causes: while other persons never show *any tendency* to scrofula, even when continually exposed in the same manner: or if they do become scrofulous at all, it is only when the external circumstances most favourable to the production of such disease have been extreme in degree, and protracted in their application.

The occurrence of scrofulous *inflammation* in various parts constitutes distinct diseases; and the occurrence of *tubercles* in various organs constitutes *other* diseases. It will facilitate our future inquiries into these several diseases, if I take this opportunity of stating to you what is known respecting the scrofulous diathesis generally: and of the modifications of inflammation which are determined by its presence.

A good deal of discrepancy, obscuring the whole subject, and puzzling the student, has existed—and I believe I may say still exists—among pathologists, as to the nature, and origin, and precise seat of tubercles, and as to the changes which they undergo.

In general they have been loosely described as being *round* masses of firm friable matter, deposited in various parts of the body. Laennec, who paid great attention to tubercles, states that they are, at first, small, firm, greyish, semitransparent bodies, which enlarge and become opaque. In that condition he calls them *crude* tubercles: at length, after an indefinite period, these crude tubercles begin to grow soft in their centre, and are by degrees converted into a liquid mass, having the consistence of cream. There is a great deal of error in this description.

Andral, another great authority, says that tubercles are, in the outset, small round opaque yellowish bodies, unorganized, and of various degrees of consistence. He ascribes their softening (not to any spontaneous changes in their central parts, but) to the admixture of pus, poured out by the textures immediately surrounding the tubercle; which has irritated and inflamed those textures as any *other foreign body* might.

In some respects this statement is nearer the truth than Laennec's.

But in the account which I am about to give you, I shall chiefly follow our countryman, Dr. Carswell, the Professor of Pathological Anatomy in University College; who is one of the latest, and, as I think, most satisfactory writers on the subject. His opinions were formed after a careful examination, for himself, of the parts infested by these tubercles. He devoted several years to the study of morbid anatomy, in Paris, where he made a very large collection of drawings, in which various diseased appearances are beautifully and faithfully delineated. Some of these he has since published. I shew you enlarged copies of those which relate to tubercle. They bear out some novel opinions which are stated in the letter-press that accompanies them.

After all, the points in question possess more of curious interest than of practical importance. But as you cannot help forming some notions respecting them, I think myself bound to lay before you those which most recommend themselves to my own judgment. At the same time you are to understand that I do not vouch for their absolute correctness.

Tubercles, then — or rather tubercular matter—is deposited from the blood. It may be considered as a morbid secretion. It is probable that the deposit, in the very beginning, is fluid: but we never see it in that state. It is certainly not so firm at first as it generally becomes afterwards; but its more watery parts are removed by absorption, and then there remains a "pale yellow, or yellowish-grey, opaque unorganized substance." This tubercular matter, so deposited, does not always assume a round form: far from it: the shape in which it appears depends upon the nature of the part wherein it is formed. It used to be held that the tubercular matter was always deposited in the cellular tissue. But Dr. Carswell asserts that its most favourite seat (if one may so speak) is *the free surface of mucous membranes.* In whatever organ it is met with, if mucous tissue enters into the composition of that organ, that particular tissue is either (he says) exclusively affected, or much more extensively affected than any of the other component tissues. These remarks apply to the lungs, the alimentary canal, the liver, the urinary organs, and the organs of generation; but it is much more easy to detect the presence of the tubercular matter in the mucous tissue of some of these organs than in that of others. It is very conspicuous in the fallopian tubes and uterus.

But tubercular matter is often deposited on serous surfaces also; among which Dr. Carswell includes the cellular tissue. It is even to be seen sometimes in the blood itself: not indeed while it is retained in its proper vessels, but when it is collected in the cells of the spleen. You know that the spongy texture of that organ allows the blood to accumulate in it in considerable quantity: and the tubercular matter may be seen forming in the blood at some distance from the walls of the cells in which the blood is contained. In one cell, according to Dr. Carswell, you may perceive simply the blood coagulated: in another, it will be coagulated and deprived of its colouring matter: and in another, converted into a mass of solid fibrin, having in its centre a small nodule of tubercular matter.

Now when a speck or morsel of tubercular matter has been deposited, any where, it is liable to increase. It grows larger by continued accretion; by additional deposits upon its surface. This being the case, we see plainly enough how it happens that tubercles assume different shapes, according as they occur in different parts. The round form which is so often observed is purely accidental. When a tubercle is deposited in the substance of the brain—and becomes larger by the continual accession of fresh tubercular matter upon and around it—it naturally takes a spherical form, because there is nothing to limit its enlargement, except the soft cerebral matter itself, which presses it with equal force on every side. For the same reason tubercles deposited in the *cellular* tissue are globular. In like manner, if tubercular matter be laid down in one of the pulmonary vesicles, so as to fill it up, it exhibits the rounded form of the vesicle. When it fills the cavity of a mucous follicle, it has a similar figure. But in the smaller bronchi it takes a cylindrical arrangement. When (as often happens) it occupies one of these tubes, and also all the air-cells to which that tube leads, then we have a sort of branch of tubercular matter, with a cauliflower termination. You see this depicted in the drawings before you. In the cavity of the uterus, and the fallopian tubes; in the infundibula and pelvis of the kidney, and in the ureters; and in the lacteal and lymphatic vessels; the tubercular matter is moulded to the forms of these parts respectively. We are more in the habit of examining tubercles in the lungs than any where else; and you will observe that in making sections of these organs, and looking only at the surfaces of these sections, we may easily overlook the branch-like disposition of the tubercular matter in the smaller bronchial tubes. We see the transverse section only of these tubes, which is necessarily more or less circular. On the surfaces of serous membranes, whether natural or adventitious, the tubercular matter will assume a rounded, or a lamellated form, according as the secretion in which it originates has taken place from separate points, or from a continuous surface.

From what has now been stated you will perceive that no alteration can take place in the tubercular matter after once it has been deposited, except through the agency of the parts around it and in contact with it. It is never organized, or capable of organization; and, consequently, no change in its consistence can originate in the tubercle itself.

It may therefore seem odd, that so accurate an observer as Laennec should have persuaded himself that the softening of tubercles begins in their centre.

Now Dr. Carswell has given what appears to me a very satisfactory explanation of this mistake. Take the lungs; the morbid conditions of which were the most especial object of Laennec's investigations. The tubercular matter is effused (principally) upon the mucous surface; upon the inner lining of the air-cells, and of the bronchial tubes communicating with them. Now it need not so accumulate as to *fill* these cavities; and it often does not; there is left a central cavity, which contains mucus, or other secreted fluids: and if the lung be cut across under these circumstances, the divided air-vesicles will look like rings of tubercular matter grouped together; and each divided bronchial tube will present also the appearance of a tubercle, with a central depression, or soft central point. On the other hand, when the tubercular matter has completely filled and blocked up these cavities, both vesicles and bronchial tubes will look, when divided, like the section of round solid tubercles. These Laennec seems, in fact, to have regarded as *crude tubercles:* while he mistook the former appearances for tubercles which were beginning to soften in their centre.

But you sometimes find large masses of tubercular matter in the lungs, or elsewhere: and in these masses you see that the process of softening is going on at several points, within the mass, at the same time. How is this to be explained? Why these large masses are formed, in truth, by the aggregation of many smaller masses, which lying near each other, have been pressed together, as the deposit continued to increase: and the cellular and other tissues originally intervening between them at length suppurate, by reason of the augmenting pressure; and by their suppuration, they soften, and gradually break down the tubercular matter which they enclose, and by which they are also enclosed. This is just the process by which tubercles are frequently expelled from the body. They increase till the surrounding parts take on inflammation, just as they would do if any foreign body exercised the same degree of pressure upon them. The inflammation thus excited is of the scrofulous kind; the thin pus which it throws out pervades and loosens the tubercular matter; a process of ulceration goes on in the surrounding textures; and at length (supposing the lung to have been the seat of disease) the detritus of the tubercle is brought up, gradually, by coughing.

Both Laennec and Louis, the latter also being a very close observer, describe the nascent tubercle as a grey semitransparent corpuscle. I have frequently seen such: but the appearance is rare, in comparison with the more opaque form of tubercle. Of this, too, Dr. Carswell offers what I think a very probable explanation. He says that the mucous membrane of the air-tubes separates from the blood, not only the matter of tubercle, but also its proper secretion: and that, frequently, when the two have been poured out *together*, a dull yellow opaque point of tubercular matter becomes *set*, as it were, in a portion of grey, semitransparent, and, sometimes, inspissated mucus. The same deceptive appearance is common on serous membranes: in tubercular peritonitis, coagulable lymph exudes, portions of which envelope little globular masses of tubercular matter.

The account which I have now given you, and which I hope I have made intelligible, is, I think, extremely interesting—and much credit is due to Dr. Carswell for having so greatly simplified our views of a subject which had previously been wrapped in profound obscurity. In no other writer, that I know of, is there to be found so complete and credible an explanation of the origin of tubercles; of the form they assume; of the phænomena attending their enlargement, and subsequent softening, and occasional expulsion.

These processes of softening, in consequence of surrounding inflammation—and of subsequent expulsion—may be regarded as a natural mode of cure. Such a cure is in truth occasionally effected. A scrofulous abscess will form in the glands of the neck—and pus and tubercular matter will be discharged—and at length the ulcer heals, and no trace of the diseased process remains, beyond a scar: and the same thing takes place also in the lungs; and, if there have been only one or two masses of tubercle deposited, the patient may thus get quite well: but unfortunately, as the scrofulous matter is extirpated from one part of the lung, it is apt to be multiplied in another, till at length we have death by hectic, and all its melancholy accompaniments.

But I am desirous of pointing out to you another way in which tubercular disease may be said to be cured by a natural process. And this also has been better described by Dr. Carswell than by any other writer. One form of scrofulous disease, exceedingly common too, especially among children, is what is called "tabes mesenterica." Tabes and phthisis, the one a Latin and the other a Greek word, signify, I need scarcely tell you, the same thing: a wasting away, or consuming: and phthisis is applied to the same disease in the chest, to which tabes is applied in the belly. The common English word is consumption; and we might very well speak of pulmonary consumption, and of abdominal consumption; but the technical name of the latter complaint is tabes mesenterica. This is not only a very common but a very fatal disease in children and young persons. The glands of the mesentery enlarge and become charged with tubercular matter: but they very rarely suppurate. Their enlargement is commonly connected with scrofulous disease and ulceration of the mucous follicles of the intestines: and the little patients die, because the lacteals are no longer able to take up sufficient nourishment from the food: they die starved. But some few do recover from tabes mesenterica. Dr. Carswell relates an interesting case in which such recovery took place, and in which he had an opportunity of examining the glands at a subsequent period: it is the only case of the kind perhaps on record. He says, "The patient who when a child had been affected with tabes mesenterica, and also with swellings of the cervical glands, some of which ulcerated, died at the age of 21, of inflammation of the uterus, seven days after delivery. Several of the mesenteric glands contained a dry cheesy matter, mixed with a chalky-looking substance; others were composed of a cretaceous substance; and a tumor, as large as a hen's egg, included within the folds of the peritoneum, and which appeared to be the remains of a large agglomerated mass of glands, was filled with a substance resembling a mixture of putty and dried mortar, moistened with a small quantity of serosity. In the neck, and immediately beneath an old cicatrix in the skin, there were two glands containing in several points of their substance, (which was otherwise healthy), small masses of hard cretaceous matter."

Now what Dr. Carswell here saw in the mesentery and the neck, is what sometimes occurs in other parts of the body; in the lungs; and particularly in the bronchial glands at their root, and about the bifurcation of the trachea. From these situations, the hard chalky matter left by the absorption of all the more watery part of the morbid secretion, and by the concretion of its earthy salts, is often coughed up. But it may remain, when the tubercles are few, and there is no tendency to their increase, for years, as an inert, and almost harmless mass.

I mentioned just now that the secretion or separation of the matter of tubercle from the blood, takes place, by preference, upon the free surface of mucous membranes, and very frequently also upon the surface of serous tissues, including the cellular.

It may not be uninteresting to state the relative frequency of scrofulous disease in different organs, or in different parts of the same organ. The facts which we possess of this kind afford us very valuable assistance sometimes in respect of diagnosis.

During the periods of childhood and youth the lymphatic glands are exceedingly prone to scrofulous inflammation: especially the mesenteric and the cervical glands. But in adult age tubercles are, beyond all comparison, most frequent in the *respiratory organs*: and they occupy the summit of the lung much more commonly and thickly than any other part. The superior and posterior porion of the upper lobe is the part in which, if any tubercles at all exist in the lung, they are almost sure to be found: in this situation their softening also commences; and it is supposed that the left lung is more obnoxious to tubercular disease than the right. So constant is this law, with respect to the upper parts of the lung, that Dr. Carswell considers the formation of tubercles in any other part of the lung as a secondary occurrence; and he declares it as the result of his experience (and few persons can have had more opportunities of examining diseased lungs) that there is no deviation from this rule; except when some other portion of the lung may have been the seat of an inflammatory attack, which has determined the priority of tubercular disease in that portion. We shall see hereafter what a very important bearing a knowledge of this law has, in settling the nature of a complaint which might, without it, be doubtful.

Scrofulous ulceration of the larynx and trachea, when they occur, are usually concomitants of tubercular deposits in the lungs.

Next, tubercular or strumous disease is exceedingly common in the digestive organs: most of all in the mucous follicles of the small intestines; both in those which are separate, and are called glandulæ solitariæ, or Brunner's glands; and in those which are collected into roundish or oblong groups, the glandulæ agminatæ, or glands of Peyer. It is secondarily to these affections, in many cases at least, that the glands of the mesentery become implicated. Tubercular deposits are frequent also in the solitary glands belonging to the cæcum. The ulceration which follows the evacuation of the strumous matter from these parts gives the interior of the bowel an appearance somewhat resembling a moth-eaten garment. Tubercular matter is seldom deposited in any other parts of the intestines, great or small, than those which I have mentioned. Dr. Carswell supposes that it may often be secreted upon the free surface of the membrane, but that, not being entangled or confined in any mucous crypt, it is removed as soon as it forms. It is not often that scrofulous tubercles are found in the liver of adults: they are not very uncommon in that organ in children, but even then they are few in number and small in size. It is a curious fact that they are much more frequently seen in the spleen also in children, than in grown up persons. The uterus, the testicle, the prostate gland, are all liable to them: they are common enough upon the surface of the peritoneum.

In the nervous system, tubercles are by no means unfrequent: they are met with oftener in the brain than in any other part of that system. That inflammatory affection, which leads to the effusion of serous fluid in the cerebral ventricles of young children, and is known by the name of hydrocephalus, occurs principally, if not altogether, in connexion with the scrofulous diathesis.

Strumous deposits are rare in the organs of circulation. Tubercles have been seen, I believe, in the muscular substance of the heart: but this must be a very uncommon thing. Scrofulous disease is not at all unfrequent in bone, especially in the bodies of the vertebræ, and in the spongy extremities of the long bones.

It is very seldom indeed that scrofulous tubercles occur in one organ only. Almost always they are met with in at least two, and frequently in all the parts at once which are liable to be infested by them. Sometimes the lungs alone are affected: but generally both the lungs and the intestines are occupied by the disease. It has been affirmed, by a great living pathologist, M. Louis, that if you find tubercles in any other organ, you are sure to find them also, and in greater number, and farther advanced, in the lungs. But this, though true as a general rule, is not without exceptions. I have seen the peritoneum crowded with myriads of these tubercles, when the most careful examination could not detect a single one in the lungs. And similar examples have fallen under Dr. Carswell's observation.

The question has been much, and eagerly discussed, whether the deposition of tubercular matter be not, what I should call, an *event* of inflammation. Some persons have strenuously argued that the curd-like substance is nothing more than a particular kind of lymph, and that it is never poured out except as a consequence of inflammation; and they cite cases of persons who always had enjoyed good health, until inflammation was accidentally excited in their lungs; immediately after which the well-known signs of phthisis began to display themselves; and after death, the lungs were found full of tubercles. But they forget to take into the account another fact, equally well established, viz. that tubercles are found, in great abundance, in the lungs of persons who were never known, in their lives, to have any functional disturbance of those organs; and whose lungs present, after death, no other traces of having been inflamed. We even find tubercles in the lungs of unborn children. Not that this is conclusive; for inflammation does sometimes attack the fœtus in utero, and leave permanent and unequivocal traces of its action.

Moreover, inflammation continually happens, in all the component textures of the lung, in the form of bronchitis, pneumonia, and pleurisy, without the subsequent development of tubercles. I admit that this fact, to be of weight, should be proved of persons who possess the scrofulous diathesis; and I believe the proof might be found: but the search for it would require much carefulness and candour

In my own opinion, there is not the shadow of evidence to shew that the deposit of tubercular matter is always and necessarily preceded by inflammation. Yet an undoubted and most important *connexion* obtains between the occurrence of inflammation and the occurrence of tubercles. Tubercles will cause inflammation, and inflammation will determine the development of tubercles. The enlarging tubercles excite inflammation in the surrounding textures by the pressure they exert upon them; and probably in other ways; by mechanically interfering with the healthy circulation of the blood, for example: and the inflammation lit up is usually of the scrofulous kind; it is slow, and partial, and easily *quieted* by treatment, though scarcely to be *cured*. On the other hand, there are numerous facts to prove that, in a person having the scrofulous diathesis, the occurrence of inflammation within the chest may rouse that previously dormant tendency into action, and become the exciting cause of the secretion of tubercular matter from the blood. The cases in which other parts of the lung than the apex are found exclusively occupied with tubercles, are also cases in which, apparently, the same parts had been the seat of inflammatory action: of which we sometimes see other traces in adhesions of the neighbouring pleura.

The connexion between tubercles and inflammation is shewn also by their occurrence in the substance of false membranes. And the same phænomenon marks the fact that they are something distinct and different from coagulable lymph.

You must not suppose, from any thing I have said, that persons of the scrofulous habit are not susceptible of *common* inflammation: we know that they are, by the readiness with which slight injuries often heal in such persons: but there is always much reason to apprehend that inflammation occurring in them will take on the scrofulous form; become chronic, if it was not so at first, suppurate tardily, and produce that unhealthy kind of puriform secretion which is characteristic of strumous disease.

Another question relating to tubercular diseases is, whether they are *contagious:* capable, *i. e.* of being communicated from one individual to another. The general belief, in this country, is that they are not. Indeed their very dependence upon a peculiar diathesis would seem to disprove the supposition. Yet some practitioners, even here, have, I know, misgivings on the subject: and in some parts of the continent, in Italy particularly, consumptive patients are shunned, from the persuasion that their complaint is infectious. I shall revive this question when I speak of phthisis hereafter.

Strumous diathesis.—I have stated, that scrofulous disease appears almost exclusively, in certain *classes* of persons, of whom, therefore, we say, that they have the scrofulous diathesis.

It is both interesting and useful to be able to distinguish those in whom the scrofulous habit of body, or the predisposition to strumous disease, exists.

Now there are certain physical and moral characters which teach us to apprehend the existence of a tendency to scrofulous disease, even when there has not, hitherto, been any local manifestation of such disease.

Again, we infer the scrofulous diathesis, in many persons, from knowing that scrofulous disease has existed among their progenitors.

On these two points I have a few observations to make: and first, on what may be considered the external marks of a scrofulous constitution.

The persons, in whom scrofulous disease is *most* apt to declare itself, are marked, during childhood, by pale and pasty complexions, large heads, narrow chests, protuberant bellies, soft and flabby muscles, and a languid and feeble circulation. They present many of the features belonging to that pattern of body which is denominated the leucophlegmatic. But the strumous disposition very often indeed accompanies a variety of the sanguine temperament also; and is indicated by light or red hair, grey or blue eyes with large and sluggish pupils and long silky lashes, a fair transparent brilliancy of skin, and rosy cheeks. This red colour, which is well defined in general, is easily changed, however, by cold, to purple or livid; the skin is thin and readily irritated; the sclerotic has often a peculiar pearly lustre; and the extremities are subject to chilblains. Such children are, many of them, extremely clever and ready of apprehension, of eager tempers, and warm affections, lively, ardent, imaginative, and susceptible. This precocity of mind and intellect, while it delights the fondness of the parent, awakens the fears of the more far-seeing physician.

But the disposition to scrofula is by no means confined to persons of the serous or of the sanguine temperament. It is frequent, though less common, in what has been called the melancholic or bilious temperament; in persons of dark muddy complexion, and harsh skin; in whom the mental and bodily energies are more sluggish and dull. And it is remarked that in persons of this cast, scrofula, when it does occur, is even more than usually obstinate and untractable.

Scrofula does often indeed appear in persons who exhibit none of those signs of a strumous disposition which I have been enumerating: but it is *more likely* to appear, cæteris paribus, where those signs *are* observed.

There are several alleged marks of a scrofulous *diathesis*, which are, in fact, instances of scrofulous *disease*. Such, for example, is that chronic lippitudo, which so frequently disfigures strumous children, rendering them what is called blear-eyed: and chronic inflammation of the conjunctiva, lasting long, without much redness, or heat, and with extreme impatience of light, and a tendency to form little pustules near the edge of the cornea. The tumid and chopped upper lips; the redness and swelling of the columna nasi, and lower parts of the nostrils, so common in children, especially during winter, are early fruits of the strumous taint. Certain maladies of the joints, what are popularly called white swellings, are instances of scrofulous disease. So may perhaps rickets be considered: at any rate, rickety children are very often affected with scrofula also. Moist eruptions behind the ears; chronic enlargement of the glands of the neck; that slow, eating, ulceration of the nares, termed lupus; may all be included within the class of strumous disorders.

When any one of these scrofulous affections has once shewn itself in any person, we know, by that circumstance, that he possesses the strumous constitution; and we look for the recurrence of his complaint in the same part, or in both parts.

In a former lecture I mentioned scrofula as one of those complaints the hereditary tendency to which is indisputable. The scrofulous *diathesis* is hereditary: and sometimes scrofulous *disease* is so too. I have seen lungs, taken from the body of a fœtus, stuffed with tubercles. There are some fine examples of this in Mr. Langstaff's museum, in the city. We have, therefore, in respect to scrofula, the rare conjunction of congenital disease, and hereditary disposition. I need not repeat here the remarks I made before, respecting hereditary diseases in general. No one, of the least observation, can doubt that the disposition to consumption is very often transmitted from parent to child. We see whole families swept away by its ravages. Like other hereditary tendencies, it may skip over one or two generations, and reappear in the next, just as family-likenesses are known to do. There are other families in which you can trace no such predisposition: but such families are perhaps few. A little leaven is sufficient, sometimes, effectually to taint a whole pedigree. The tendency, however, exists in very various degrees. It may be so strong that no care, no favourable combination of circumstances, will prevent its local manifestation: and it may be so faint that it would never break out into actual mischief if the exciting causes of scrofulous disease could be warded off. It is important, therefore, to know what these exciting causes are.

"They may all be ranked together (to use the language of Dr. Alison) as causes of *debility*, acting permanently, or habitually for a length of time, although not so powerfully as to produce sudden or violent effects."

The circumstances to which, acting separately or in combination, we most confidently ascribe the power of developing scrofula, are insufficient nutriment, exposure to wet and cold, impurity of the atmosphere, a want of natural exercise, and mental disquietude. To estimate the separate effect of each of these causes may be difficult; but their combined influence is unquestionable.

There can be no doubt that improper diet, or rather imperfect nourishment, is one main exciting cause of scrofulous disease. Yet it is not an easy thing to obtain evidence of this, which shall be entirely free from fallacy. The disease occurs very often among the poor; but then it very often occurs also in the families of the rich. There is one fact which has always struck me as very instructive and convincing on this point. Infants at the breast, having good milk and plenty of it, seldom show any signs of scrofulous disorder: whereas, as soon as they are weaned, they become subject to various complaints of a strumous kind. When an unweaned child is brought to us with ophthalmia, we expect almost always to discover inflammation of the common and acute kind; the purulent eye. In nine children out of ten who come after weaning, we look for and find some form of scrofulous inflammation, such as pustular ophthalmia.

The greater prevalence of scrofulous disease among the poor may be ascribed, in great measure, to their frequent exposure to wet and cold. Scrofula seldom breaks out in the mild and dry weather of summer. The influence of climate in fostering or repressing the disease is notorious. There is no climate in which it flourishes more than in our own. Consumption is called, in some parts of the continent, the English disease. Persons who migrate from this country to warmer and more equable climates, seldom become scrofulous; nay, it very often happens that the incipient indications of strumous disease are completely arrested or quieted by the change. Phthisical patients, much troubled by symptoms here, are sometimes so thoroughly freed from them soon after their arrival at Madeira, as to be deceived into the belief that their case had been mistaken. They think themselves well. A return to this country undeceives them. The native inhabitants of hot climates are by no means, however, exempt from struma, in any of its forms. When they come to this country they are more subject to scrofula than we are ourselves. And the same effect of climate is very distinctly visible in the lower animals. The physicians in ordinary to the inmates of the Zoological Gardens will tell you that the beasts and birds that are brought hither from warm latitudes perish in great numbers from scrofulous diseases. John Hunter observed this long ago in respect to monkeys.

Of the debilitating influence of impure air I spoke in a previous lecture. That it promotes the evolution of scrofulous disorders we have proof, on a large scale, in the great mortality produced by such disorders among the lower classes in large cities as compared with agricultural districts. The per centage of deaths from consumption, hydrocephalus, and various other diseases that spring from a strumous habit, is much greater in London than in the country. Even in individual cases this influence is too manifest to be overlooked or mistaken. It is impossible to question the beneficial effect, upon children afflicted with scrofula, of a removal from London to the sea-coast.

I said, when I first began to speak to you of inflammation, that it was the only disease which we are able to excite at pleasure: that we could cause inflammation in various ways whenever we desired to do so; but that to make a cancer or a tubercle was beyond our power. Now in strictness of language, and in the practical meaning of these words, this assertion is quite true. But it is not so exact if we extend it to all the *predisposing* causes of disease. We are able to bring about the formation of tubercles, in the lower animals at least, by so arranging the external influences as to concentrate their prejudicial effects. By shutting rabbits up in a cold, damp, dark, and narrow place—and feeding them on food not natural or suited to them—we can produce or evolve in them tubercular disease. Of course no experiment of that kind can be purposely made upon a healthy man; but accidental opportunities arise of witnessing an approach to a similar trial of the human species: instances are recorded of persons, previously well, (but having probably the strumous diathesis) becoming affected with scrofula after being confined in the dungeons of a prison, and there scantily fed.

Something of this kind I have, very recently, had the opportunity of seeing.

A number of male prisoners, chiefly young men, became affected with glandular swellings of the neck, after incarceration for some length of time in the Penitentiary at Milbank. The circumstances of their health led to a relaxation of their punishment. Instead of being kept in solitary confinement, in a coldish cell, and on the prison diet, they were permitted to work, for several hours daily, in each others' company, in the garden of the establishment. Some porter was at the same time given them, and their allowance of meat was increased. The improvement in their condition was rapid and striking. Here we have the disorder germinating under one state of external circumstances, and checked immediately under the opposite state.

If you consider the way of life of the children of the poorer classes in this metropolis, and in the larger manufacturing towns, you will find that they are much exposed (though in a less degree) to the same injurious influences, the combination of which appears to generate tubercles in the rabbit. They live, for the most part, in an atmosphere made stagnant by narrow streets; and in small, crowded, ill-ventilated, and dark rooms in those narrow streets: the stagnant atmosphere is contaminated in a thousand ways; they are very insufficiently protected from transitions of temperature, against cold and wet, by their clothing; they are commonly ill fed—their diet being frequently scanty, and generally of a kind quite unsuited to their growing years. We need not be surprised therefore at the ravages which scrofula, in its manifold shapes, makes among the children of the poor in large and populous towns. If ever scrofula be generated, in this climate, independantly of any hereditary strumous taint in the constitution, it is in them. But in most cases I believe it is the latent disposition that is called into action. Moderate exercise, in pure air, and in the open daylight, with suitable nourishment, sufficient clothing, and attention to the state of the bowels: these circumstances comprise nearly all that we can do for preventing the development of struma: and from each of them many of these poor children are habitually debarred.

CLINICAL LECTURES,

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Erysipelas—Diagnosis of Abdominal Tumors—Cases of Encysted Dropsy and Abdominal Tumor.

ERYSIPELAS.

Erysipelas is a very common disease in our hospital at particular seasons, and you must have frequently witnessed its symptoms and progress. In the following observations we mean to confine ourselves chiefly to the treatment, as it involves a peculiarity not generally adopted, and which was first noticed by Mr. Higginbottom. It is agreeable to our experience, and we believe generally admitted by accurate observers, that the violence of the constitutional symptoms is, in the majority of cases, proportionate to the extent of the erysipelatous inflammation; and thus a partial affection of an extremity, or of the face, is generally attended with little urgency in the general symptoms; whereas, when the whole head and face become affected, or a whole limb or the trunk of the body, it often becomes an affection attended with much danger. If this be admitted, it then becomes quite obvious that an insulation of the disease, or a limitation of its progress, is a matter of the most essential importance. That this is practicable we have no hesitation in stating, and that it will succeed in the majority of cases we are also satisfied, provided it be carefully performed, and with attention to the rules which we shall presently explain. Nitrate of silver is the agent by which this may be accomplished; and the following principles must be attended to, to insure success:—

1st. It must be applied to a sound portion of the integuments, viz. to a part where there is neither redness nor œdema, but as near the affected skin as possible, so as to avoid this. We have seen failures repeatedly from want of attention to this rule; for, on the one hand, if your caustic line be too far distant from the part affected, the vesicating effect of the nitrate of silver may have completely subsided before the erysipelatous inflammation reaches that portion of the skin to which it was applied; and on the other, if too near, the erysipelas may be beyond the line at the time of its application, even although there be no redness present. We have generally observed in this disease, that beyond what is commonly considered the red line of separation between the healthy and diseased skin, there is about an inch or more of œdematous integuments, which are often somewhat tender to the touch, and where, we have no doubt, the disease also exists. 2d. The erysipelatous surface must be completely encircled by the caustic line; for if even a minute chink be unvesicated, the inflammation will pass through it, and spread beyond the boundary.

The practical rules to be attended to are the following:—Take a pretty large hair-brush, and moisten thoroughly with water the part that has been selected, to the breadth of about an inch; then rub a cylinder of lunar caustic very freely over this moistened portion of the skin. Distinct vesication over the whole surface, to which the caustic has been applied, should be produced; for if this does not follow, the disease may extend beyond the line.

And this is, perhaps, the reason why a saturated solution (consisting of equal parts of lunar caustic and water) is not so certain as the solid caustic. How then does the nitrate of silver act, in thus insulating the erysipelatous inflammation? The following theory may explain its peculiar operation:—The inflammation appears to travel in its progress superficially along the skin, and it may even be detected by a very slight degree of œdematous tenderness, about an inch or so beyond the red line; but there appears to be no affection of the cellular texture in this situation. Now the vesication produced by the action of the nitrate of silver may have excited an action which is incompatible with the progress of the erysipelas in that direction. This view is corroborated by the fact that if the caustic line be formed at too great a distance from the diseased surface, and if the latter be slow in its progress, then the line is less certain in its preventive power; for the vesication caused by lunar caustic heals very rapidly, and perhaps more so than blistering produced by any other agent.

We have thus stated our opinion pretty strongly as to the efficacy of this mode of treatment, believing, as we do, that it is capable, in the majority of instances, of checking the extension of the disease, when applied according to the principles already explained; and also that, in our experience, the fatality of this affection, from its extension over the body being frequently prevented, has been less than we experienced under the usual therapeutic means.

At the same time, we are willing to admit that we have met with some instances where the erysipelas has travelled beyond the properly vesicated line; and also a few, where one or two smaller insulations were required, in cases where it only passed at a particular point of a limb or trunk of the body.

It must also be acknowledged, that erysipelas is often confined to particular parts of the integuments, independent of the operation of any particular treatment, such as to the head and neck, a portion of an extremity, &c.; but if we find a regularly progressive inflammation checked at points, where it rarely stops spontaneously, such as at the eye-brows, the chin, or the nose, whether it be ascending, descending, or crossing laterally, more particularly if it come into close proximity with the caustic line, it is fair to conclude that the latter had proved a barrier to its further extension.

In typhus fever erysipelas is very frequent during the convalescent stage, and generally attacks the face or head; but, in our experience, it is not quite so apt to spread to the trunk as in the idiopathic affection; at the same time it does so very often. During the time that we attended the Fever Hospital, this disease was exceedingly common; and, with the exception of two or three cases, chiefly confined to those where the insulation was either not performed sufficiently early, or, with strict attention to the rules mentioned, the affection never extended to the trunk, and in many instances it was confined to the face, nose, cheek, &c.

The state of the previously-affected parts in erysipelas does not seem to be much influenced by the checking of its progress, for resolution or suppuration occurs in a similar way as when it is allowed to spread; with the exception, perhaps, of the first-mentioned process, which appears to be more rapid in the immediate vicinity of the caustic ring. The counter-irritation excited by the nitrate of silver seems also to be beneficial in local affections which sometimes accompany this disease, viz. delirium, diseases of the chest and windpipe; and also in preventing suppuration in the neighbourhood of the vesication. Besides the uses of lunar caustic in frequently checking the progress of erysipelas, it is one of the most powerful agents, when applied in solution to the inflamed skin, particularly where the cellular tissue is not much implicated, in reducing the redness, pain, and swelling; for on the day following its application the skin is generally less tense and red, and is often somewhat shrivelled. If, however, there be effusion of serum or pus into the cellular tissue, incisions are generally necessary. The strength of solution we employ varies from ten to twenty grains of this salt to one ounce of water, applied twice a day with a hair pencil. In the general treatment, the tonic plan has generally succeeded best, particularly in hospital practice, where many of the patients have broken-down constitutions by intemperance and other causes. In stout and vigorous patients the emeto-cathartic mixture may sometimes be employed with advantage; but it ought not to be pushed too far, and laxatives or laxative enemata should be substituted for it, in a large majority of cases, for we have never seen reason to believe that it has any direct power in checking the extension of the inflammatory action. We shall now state, very shortly, the history of a few cases of erysipelas, in as far as is necessary to illustrate the operation of the nitrate of silver in checking its progress.

Wm. Gibbie, æt. 50, was admitted for paralysis on the 23d Nov. 1839, for which a seton was inserted in the nape of the neck. About the 2d Dec. some erysipelatous inflammation appeared around the wound, which spread downwards and upwards. No attempt was made to check it at any point except in the arms. It had passed the acromion a few inches, and was advancing pretty rapidly; a caustic ring was formed on both arms, near the insertion of the deltoid, and the following is the report of the result:—"Erysipelas did not spread beyond the caustic rings, although it reached them at every point. Since the abatement of the erysipelas, the paralysis has been much less, and the patient can now walk with tolerable freedom."

Jane Melville, æt. 19, admitted 1st Feb. 1840, for erysipelas of the left leg, which was swollen, red, and partially covered with vesications from the knee downwards. A caustic ring was formed immediately above the knee, beyond which the inflammation did not spread. Extensive suppuration followed, in this case, which, along with the severe bronchitis under which she laboured, protracted her recovery for a considerable time.

Mary M'Lean, æt. 29, was admitted for nodes upon the head, on the 14th Jan. 1840. She was blistered on the nape of the neck on the 30th, and the resulting sore was attacked with erysipelas in a few days thereafter. It spread down the back, and upwards, along the head, to the face. No attempt was made to check its progress along the back, but a caustic line was formed from the tip of the right ear, over the chin, to the same part of the left ear, beyond which the inflammation did not spread. She recovered in a short time, and her pains were gone.

Mrs. Kinneburgh, æt. 62, was admited on the 10th Feb. 1840, for erysipelas of the foot and leg, which extended posteriorly to the middle of the thigh. A caustic ring was formed as near as possible to the affected parts, and there was no extension of the disease beyond that point. She recovered rapidly under wine and tonics, although a slough formed on the back of the foot.

Isabella Harvey, æt. 40, was admitted on 11th Feb. with erysipelas of the forehead and face, which was spreading pretty rapidly down the neck, both anteriorly and posteriorly, on the 14th. A caustic ring was formed below the erysipelatous margin, beyond which the disease did not extend. She was dismissed, cured, on the 17th, having had no other treatment except a laxative, small doses of the diaphoretic mixture, and the solution of the nitrate of silver externally.

Daniel Culcreuch, æt. 40, was admitted on the 18th Jan. 1840, for acute anasarca and bronchitic pneumonia. On the 25th, erysipelas appeared around the right eye, which spread over the face, and was descending the neck. A caustic ring was formed around the neck, beyond which the inflammation did not extend. He was dismissed, cured, on the 6th February.

John Shaw, æt. 25, was admitted on the 30th Dec. with cynanche maligna, accompanied with laryngitis. On the 6th Jan. some erysipelatous inflammation appeared on the nose, which spread upwards to the forehead. A caustic ring was formed about the inflamed parts, beyond which the disease did not spread. He required a large quantity of wine to support his strength, but was ultimately discharged cured.

James Docherty, æt. 18, was admitted on the 27th March, 1840, for enormous anasarca of the whole body, arising from hypertrophy and valvular disease of the heart. He was affected with erysipelas of the leg on the 1st April, which spread rapidly up the thigh. A caustic ring was formed about the inflamed parts, pretty near the groin, which limited the extension of the disease upwards. One or two small abscesses formed in the leg, but the general swelling and inflammation diminished very rapidly after the application of the caustic. There was another fact connected with the patient's history which is worthy of being recorded, viz. the rapid diminution of the anasarcous swelling and the great increase of urine about the time that the erysipelas began to decline. The urine, for about a week, averaged from seven to nine pounds daily; and after his anasarca was completely gone, the increased impulse of the heart, and the strong rasping bruit, which formerly existed, were barely distinguishable.

ABDOMINAL TUMORS.

It is frequently very difficult to determine the precise nature of abdominal tumors, and post-mortem examinations occasionally demonstrate the fallacy of our diagnosis. At the same time, by a careful exploration, and accurate analysis of the general symptoms, a pretty correct opinion may often be formed. It would be inconsistent with the nature of a clinical lecture to describe the different methods of exploring the abdomen in the various diseases of this cavity; we shall therefore confine ourselves to three, of which we have examples; viz. the detection of fluid in the cavity of the peritoneum, or in cysts, the detection of tumors, and the mode of ascertaining whether the swelling or tumor be under or above the abdominal muscles. It is in general easy to detect fluid in the cavity of the peritoneum, when the quantity is pretty considerable, but when it is small it is sometimes more difficult of discovery. Percussing the abdomen with the finger, while the hand is placed on the opposite side, is, generally speaking, conclusive of the existence of fluid, when a peculiar vibratory fluctuating motion is felt. When there is much fluid present, and consequently great distension, this motion is felt in any position of the patient, but if it be small in quantity it is necessary to place the patient on his back, or, if he be strong enough, in the erect posture, which causes the fluid to gravitate to the lower part of the abdomen. Mediate percussion with the pleximeter is also of considerable value in such cases, for when fluid is accumulated in the abdomen a dull sound is produced in the situation where it is lodged. In doubtful cases the diagnosis is rendered more certain by changing the position of the patient. Thus, if, in the horizontal position, after the bowels and bladder had been freely emptied, the percussion all over the abdomen was clear, while in the erect posture it was found dull inferiorly, the conclusion would be pretty certain that the cause of the dull percussion in the latter case was fluid.

In encysted dropsy, or tumors of the abdomen, there is always, at their commencement, a distinct swelling, which is generally capable of being defined by the hands, and sometimes by ocular inspection, and its shape is different from an ascitic swelling. In percussing a tumor of this kind the sound is always dull, and the fluid or solid not being able to change its place, as in general effusion, into the peritoneal cavity, its sphere is more fixed, or limited to a particular port of the abdomen. Sometimes, however, the cyst or tumor is loose, and may change its place from one part of the abdomen to another; but, in this case, it does not take the level of gravitation, or descend to the lowest point of the abdomen, as in ascites. In some cases also an obscurity may arise, if percussion alone be trusted to; for a portion of intestine may cover the tumor, and from this a clear sound may be elicited. This may in general be avoided by depressing the pleximeter to the level of the tumor. The stethoscope may also be used as an auxiliary in the diagnosis. When this instrument is applied to the abdomen in its healthy state, the motion of flatus is frequently heard in the regions where the intestines are situated. This movement is sometimes interrupted, but by causing the patient to cough it generally recommences. When the abdomen is much distended with serum, it is not heard in those situations where the stratum covering the intestines is very deep; but when it is less so, the sound is heard as if deep seated. Again, if the stethoscope be applied to a tumor which springs from the posterior walls of the abdomen, and if this instrument be firmly depressed upon it, no sound whatever will pass through the stethoscope to the ear. We have verified these statements in a number of cases: at the same time we would caution you only to use this plan as an auxiliary means; for it is quite possible that it might be indurated intestine, even although no flatus was discovered passing through it; but if, on the other hand, borborygmi are heard in an abdominal tumor, the evidence of its intimate connexion with the intestines would be more positive.[*]

It is sometimes difficult to ascertain whether a tumor be situated above or below the abdominal muscle, more particularly in fat persons. When an abscess, or chronic induration, is seated in the interstices of the abdominal parietes, percussion is of considerable value; for unless it be very large a tolerably clear sound will be elicited if sufficient force be employed; whereas, if its origin be within the abdomen, the sound is, in every case, perfectly dull. A careful examination with the hands must also be made; for in the majority of cases, by insinuating the fingers into the abdomen pretty deeply, on each side of the tumor, its deep seat or superficial situation may be detected. If the affection be seated in the cellular texture, you may sometimes be able to elevate it from the abdominal muscles, and ascertain its thickness. This method may be employed to detect depositions of fat or serum in the cellular texture, and phlegmonous inflammation existing there, before it has extended much. The history of the case is also of importance, particularly regarding abscesses; for those which are internal are generally more slow in their progress than those which are external.

CASE OF ENCYSTED DROPSY.

Mary M'Nicol, æt. 46, unmarried, having had no children, was admitted on the 24th of March, 1840, with the following symptoms. Abdomen is very much swollen, measuring forty inches around umbilicus; not very tense, and it fluctuates very distinctly. The right side, half way to umbilicus, projects somewhat more than other parts of abdomen, and feels more distended. Is much troubled with cardialgia, pyrosis, and acid vomitings; complains of pain in epigastrium and left hypochondrium, occasionally shooting to right side. Appetite tolerable; bowels regular; tongue white; skin cool, very harsh and dry, and no precipitate is thrown down from it by heat or nitric acid: no cough: percussion and sounds of chest good. States that she first observed the swelling six years ago, and that it has since gradually increased, and has not been removed at any time by treatment. Menstruation is regular.

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[*] As it is not worth while to make a separate communication on the subject, it may be here stated that we have lately, in two or three cases, ascertained the value of the stethoscope when applied to the penis, in determining the existence of calculus during the process of sounding; and the superiority of this situation to the pubes, the place generally selected. The principle of its superiority is easily explained; for when the stethoscope is applied to the pubes during the percussion of the calculus, the sound is communicated to the ear through the medium of the soft parts and bones of the pelvis; whereas, when the instrument is applied over the penis, the sound is communicated by a metal, which is a much better conductor.

This patient was treated with diuretic powders, composed of squills, digitalis, supertartrate and nitrate of potass, along with pills of calomel and opium, to the extent of salivation, without benefit. The following report was taken on the 14th of April:—Percussion of abdomen completely dull, except at left side inferiorly, which is clear, and at the junction of the clear and dull portions there is a distinct line of indentation. Some salivation; pulse 68, soft, weak; tongue red and dry; bowels pretty open. At this date the pills were omitted, and paracentesis abdominis was performed, and on examination of abdomen afterwards, a thickened or hardened ridge or margin was discovered surrounding its cavity, particularly on right and left sides. Twenty-one pounds and a half of serum were evacuated, which was colourless, slightly opalescent, and of sp. gr. 1008. It had a faint saline taste, was almost neutral, and a scanty precipitate was thrown down by the addition of nitric acid, indicating a little albumen. Nitrate of silver caused a copious precipitate, but none was produced in it by the addition of chloride of carium. Sulphuric acid occasioned an effervescence, and the derangement of a gas, which produced with ammonia a white vapour. An excess of tartaric acid caused no deposit. 500 grains, when evaporated, left a residue of 7·5 grains of a salt, which seemed to be almost entirely chloride of sodium, having the taste and several of the other qualities of this substance.

After the operation of tapping, the diuretic powders were continued for about a fortnight, but the urine being still below the natural quantity, viz. about two pounds and a half, they were omitted, and a solution of the acetate of potass employed, according to the following formula:—

℞. Acet. Potass. ʒj.; Aquæ ℥viij. Solve.
Cap. ʒi. solutionis ter in dies.

She had also a few ounces of wine daily to support her strength. Under this treatment the urine increased to about three pounds and a half daily: her general health was improved, and she left the hospital about the middle of May, being about five weeks after the operation, without any appearance of the regeneration of the fluid in the abdomen, although there is every probability that it will return.

Remarks.—Upon what grounds, then, is this case classified as one of encysted dropsy, for in several of its general characters it resembled ascites. They may be reduced to the following:—1st, The irregular shape of the swelling, and the tympanitic sound which was elicited from the left inferior side of the abdomen. 2d, The thickened margin which was discovered surrounding the abdomen after the fluid was evacuated, and the appearance of the serum, which differed from the ordinary ascites in several of its qualties. 3rd, The slow progress of the disease. The irregular shape of the tumor was quite distinct in the horizontal posture, although, from the considerable size of the swelling, and prominence of the abdomen, it might readily have been mistaken for ascites on a superficial examination. The tympanitic or clear sound of the abdomen on the left side cannot be accounted for on the supposition that it was an ascitic accumulation, for in this disease the gravitation of the fluid during the horizontal position of the patient necessarily renders the percussion dull in the inferior and lateral regions. This view is also supported by the existence of a thickened margin, especially at the lateral parts of the abdomen, which may readily be explained by taking into account the collapse which would take place in the sac after the evacuation of the fluid, and the facilities which were then offered for ascertaining the thickness of its parietes. The serous fluid evacuated was also different from that which generally exists in ascites, in being of less specific gravity, colourless, in containing so little albumen, and such a large proportion of common salt. We would not, however, lay much stress on the chemical constitution of the fluid, for we are not in possession of a sufficiently extended series of facts, connected with the chemical constitution of dropsical fluids, to warrant us in drawing very certain conclusions from them; at the same time, it is right to admit, that this species of evidence, although not so certain at present as it is likely to become at some future time, is a corroboration of the other symptoms. The slow progress of the disease is also another point in which it differs from ascites, for the latter is much more rapid in its progress, and is accompanied with a more serious deterioration of the general health, than what occurred in our patient during the six years that she laboured under the affection.

Cases of this kind are by no means common, and are even more rarely met with than ovarian dropsy; but several of this description have been detailed by authors: and Mr. Coulson relates a case where the cyst adhered to the abdominal parietes and several of the viscera.

ABDOMINAL TUMOR.

Mary Adam, æt. 24, married, having had one child about three years ago, was admitted on the 8th of March, 1840, having the following symptoms:—Occupying left lumbar region of abdomen there is a roundish tumor, which projects considerably, is about the size of a large melon, has a firm elastic feel, and is the seat of considerable and constant pain, which is very acute on the slightest touch. No stool for three days, and bowels are habitually constipated; tongue whitish; appetite pretty good. Affection commenced about two months ago, and ascribes the cause of it to constipation. States that it has twice been of its present size, and was diminished by purgatives. Menstruation regular; uterus normal.

Abstrah. ℥x. Sang. part. dolent. c. c. Cap.
Ol. Ricin. ℥i. c. Submur. Hyd. gr. v.

March 16th.—Swelling increased, and indistinctly fluctuates; has frequent perspirations; bowels regular.

19th.—Tumor still increasing, and there is some throbbing pain felt in it; parietes thinner; pulse 84, soft; bowels rather constipated.

App. Cataplas. emoll.

23rd.—Yesterday about six ounces of thin, brownish, fœtid pus, were evacuated from tumor by grooved needle and cupping-glass. This morning a small ulcerated opening formed near wound made by grooved needle, through which 19 ounces of similar pus were discharged. Pulse 68, moderate; tongue clean, moist; opening closed by strap and bandage.

Hab. Cerevis. Fort. lb. ii. indies.

25th.—About 12 ounces of more consistent and less fœtid pus were discharged to-day from spontaneous opening; less swelling: feels stronger: pulse 80, soft.

April 2d.—This morning a considerable quantity of pus was spontaneously evacuated from opening: pulse 72, moderate; no sweating; tongue white.

April 5th.—Since last report two or three ounces of more healthy pus have been discharged from opening every second day, and there is now no fluctuation, but surrounding swelling is very firm: pulse 84, moderate; tongue clean; appetite good.

13th.—Some clean serum has been discharged from opening for the last two or three days, and probe passes into it perpendicularly to the depth of one inch and a half. There is now no fluctuation; but a firm slightly moveable tumor exists, fully larger than the first, but not painful when pressed: pulse 68, moderate; tongue pretty clean; some nocturnal sweatings; bowels regular.

This patient was dismissed about the beginning of May, with the ulcerated opening cicatrized, but the hard tumor still remained, but was not painful. Her strength and general health were greatly improved.

REMARKS.—This disease seems to have been in a somewhat indolent state before the patient's admission into the house; for, according to her statements, it had existed for two months, and had been diminished once or twice by purgatives. After her admission, however, it increased considerably; for at that time it was about the size of a large melon, with little prominency, whereas now the part that projects is about the size of the fist, and on pressing the fingers on each side of the tumor, down towards its base, which appears to be deep-seated, it feels nearly as large as a child's head. It seems perfectly encysted, and unconnected with the general cavity of the peritoneum, although there can be little doubt of its being situated under the abdominal muscles. No murmur of flatus has ever been detected in it; we are therefore inclined to think that it is not immediately connected with intestinal disease, and, with the exception of constipation, there seems to be nothing abnormal in the state of the bowels. In all probability it has its origin in the cellular texture lining the left lumbar region; for it has little mobility; whereas, did it arise from the omentum, mesentery, or other moveable organ in the abdomen, it would be much less fixed in its situation. It has, therefore, all the characters of a chronic abscess, viz., first the chronic induration, then the gradual softening, prominency, fluctuation, slight throbbing pain, perspirations, &c. The nature of this case, after a careful analysis of the symptoms, was, therefore, pretty clear, but the mode of treatment also required some consideration. If our opinion was correct, no immediate risk to any of the abdominal viscera would be the result of opening the abscess; but it was equally obvious that a free incision into it, by admitting the air into its cavity, might excite high irritative fever, which might of itself be highly dangerous. We therefore resolved to adopt a practice which we have repeatedly had recourse to in opening chronic abscesses situated in other parts, and also in discharging puriform matter from the joints, viz., puncturing with a grooved needle, and the application of a cupping-glass. This plan was only tried once, with our patient, in consequence of the parietes of the abscess having ulcerated. In order, however, to approximate the treatment as nearly as possible to the plan we intended, the opening was carefully secured by adhesive straps and bandage, as soon as the matter was evacuated. Her general treatment consisted of occasional purgatives, wine, and light nourishing diet, to support the strength. The prognosis, in this case, of the ultimate result is certainly unfavourable; for though the immediate danger arising from the suppurative inflammation has been got over, a hard indolent tumor still remains, which very likely may suppurate again if any new irritation be excited in it by constipation or other causes, or even without any assignable reason: at the same time it is possible, from her youth, that it may be absorbed, provided she carefully attends to the improvement of her general health.

ON
CONGENITAL OPACITY OF THE CORNEA.

BY MR. S. CROMPTON, OF MANCHESTER.

Two children of the same parents born with opaque corneæ.—The appearance of the eyes at birth, and now.—The testimony. Three children in another family, supposed to have been born with opaque corneæ. These cases described by Mr. Farar in 1790. *Mr. Middlemore, surgeon at Birmingham, disbelieves them. An examination of Mr. Middlemore's judgment.*

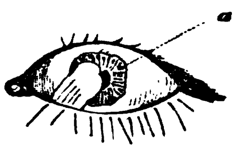
To the Editor of the Medical Gazette.

SIR,

THERE are two brothers in Manchester who are commonly supposed to have been born with opaque corneæ. The elder boy is eighteen years old; the younger three; and they are the second and tenth of a family of ten children of the same parents: the eyes of the rest being perfect*.

The right eyes of both brothers are staphylomatous; the staphyloma being much more prominent in the eldest boy.

Their left eyes agree in the following particulars:—They are very small, and soft to the touch; the line of union of the sclerotica and cornea is irregular, and less distinct than is natural. The irides are blue, and very convex. The eyeballs are wanting in plumpness and rotundity, and look unfinished.



This is a drawing of the younger boy's left eye. You see that an opacity of the cornea keeps a part of the pupil out of sight; and that, at the upper part, there is an irregularity in the outline of as much of it as is visible. But the elder boy has a regular pupil, and the whole of his cornea is quite transparent, saving a small portion of the lower part of it at its junction with the sclerotica, and I am not sure whether this opacity is not from an encroachment of the sclerotica at this point, and a result of the irregular line of union of the cornea and sclerotica, of which I have already spoken.

The elder boy can see well. I have endeavoured to ascertain the exact degree of vision which the younger possesses, but without success. When he is examining any object, he turns his eyeball inwards and his head to one side, probably in order to present as much as possible of the pupil towards it. Things which he can handle he puts very close to his eye.

So far I have attempted to describe the *present* appearances of the eyes of these two brothers; and, in the next place, I shall lay before you the testimony upon which the supposition, that they were born blind of their right eyes, and with opaque corneæ of the left, is founded.

First, *the testimony of the mother.*—(Whom I have known seven or eight years, and can perfectly believe). She states that on the day after he was born, she discovered that the eyes of the elder of these two boys were "not right." She was led to examine them by observing, when he was asleep, a prominence of the upper eyelid of the *right* eye. On looking at this eyeball, she discovered that it was far from being as it ought to be. It projected at that time as it does now, but not so far. The front of the *left* eye was partly covered by a "pearl." This opacity grew thin first of all at the outer edge of the cornea: that portion of it, which was at the nasal margin of the cornea, being the last to gain its transparency. Her surgeon saw the eyes on the same day, and told her that medicine would be of no use to them.

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* Of the condition of the eyes of the first born child of these parents, nothing is known. The child died within a few hours of birth, and its eyes were not examined.

Since the birth of this boy, she has always commanded her nurse to look at the eyes of her other children immediately after birth, to see if they were perfect. The third child, the fourth, the fifth, the sixth, the seventh, the eighth, and the ninth, were all born with perfect eyes: the tenth was not.

Her tenth delivery was attended with danger, and her surgeon tarried awhile with her. Before he left the house, the nurse discovered that the child's eyes were not right. They were shown to him immediately, that is to say, not later than one hour after birth. He gave her the same opinion that she got respecting her eldest boy, viz. that medicine would do no good. Most positively, there was no running of matter from this boy's eyes; there was no discharge whatever; neither were the eyes bloodshot, nor were the eyelids swollen. As to the elder boy, she cannot speak confidently. She does not remember that matter ran from his eyes: it may have done. It is so long since he was born that she is afraid to trust to her recollection.

Second, Mr. Allen, late house-surgeon to St. Bartholomew's Hospital, who attended the lady upon the birth of the youngest of these two boys, has very kindly given me the following particulars:—He saw the eyes immediately after birth, and distinctly remembers that the child was born with opaque cornea. He met Mr. Barton in consultation upon the case, and he remembers that the imperfect development of the eyeballs was particularly remarked. The child had not purulent ophthalmia.

Third, Mr. Barton, the senior surgeon to the Manchester Eye Hospital, remembers meeting Mr. Allen in consultation upon the youngest of these two children. He considered the eyeballs to be imperfectly developed*, and from the testimony, he felt assured that the opacity of the cornea was congenital.

Fourth, I saw the boy when he was about a month old. I had no doubt that the disease was congenital. There was no redness of the conjunctiva, nor granular state of the eyelids. I thought the case so remarkable that I have frequently called upon the mother to see the changes that were taking place in the eyes. At that period I made most diligent inquiries respecting the previous existence of inflammation, and satisfied myself that none had existed since birth. The entire cornea of the left eye was densely opaque. The outer edge of it cleared first of all.

Fifth, Mr. Walker, assistant surgeon to the Manchester Eye Hospital, tells me that this is the case to which he alluded in the following quotation:—

Purulent Ophthalmia, even before birth. By John Walker, Esq., Manchester.—"You will probably agree with me in thinking that this disease may arise from a number of causes, one of which may be some such secretion as that alluded to, and another a peculiar congenital predisposition. This extraordinary case I will state a little in detail, since, as far as I know, there is no similar one on record, although probably others must have occasionally occurred. The child, when first brought under my notice, was six months old, and the mother, a very intelligent person, informed me that at the time of birth its eyes exhibited the same appearances as were now observable. The disease had run through its entire course previously to birth, for, according to her account, there was no puriform discharge, inflammation, or intolerance of light, noticed at any time subsequently. The cornea of one eye had completely sloughed, the eyeball had sunk, and of course not the slightest vision existed*. More than one-half of the cornea of the other eye was opaque; through the remaining transparent portion a part of the pupil could be discerned, and the iris and cornea appeared almost in contact. The transparency gradually extended, and more of the pupil became accessible to light; hence, though vision was very imperfect when I last saw the child, yet it appeared to be gradually improving." — Braithwaite's *Retrospect*, vol. i. p. 115, taken from the Lancet, Feb. 8, 1840, p. 713.

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* Mr. Barton pointed out to me a case from Ripon, in Yorkshire, in which there was a like imperfect formation of the eyeballs. In this case the *cornea* was transparent, but the *lens* opaque. The eyes were particularly small, and it was said that the child was born with these appearances.

* I saw this child for the first time when he was about a month old; Mr. Walker when he was six. I remember distinctly that the right eyeball was particularly small, and that none of the iris was visible in the left eye. Since that time the right eyeball has grown very considerably. It has not been a mere increase in size, but, as it were, an evolution of an eyeball. Changes are continually taking place in it. Although the cornea is staphylomatous, it appears that there is an effort to restore its transparency. Within the last month or two, something like a pupil has become visible. It was first observed by the mother, who very anxiously watches the changes in her boy's eyes. These circumstances countenance Mr. Barton's opinion that the eyeball had been developed, not in utero, but arrested in its growth.

Mr. Walker mentions another case which he saw on the second or third day after birth. Both corneæ "were opaque throughout, and unusually large and prominent, so that very little of the sclerotica was discernible. The opacity was of a bluish white colour; there was scarcely any irritation about either eye; nothing like inflammation." He regarded it as a case of malformation, and he says that, at the second year, the corneæ were "perfectly healthy, transparent, and of normal size."

I think it would be difficult to obtain more conclusive evidence respecting any congenital disease of the eyes than that which I have collected respecting the younger of these boys. The evidence is not so clear concerning the elder boy; but if the following cases be true, it would seem certain that several children in the same family *may* be born with opaque corneæ.

An account of a very uncommon Blindness in the Eyes of newly-born Children. By Mr. SAMUEL FARAR, Surgeon, at Deptford. Communicated by Mr. WATSON. Read March 2d, 1790[*].

"About nine years since, I was desired to see a child, who was about a month old, and apparently blind, having the cornea of both eyes opaque, so that not the least of the iris was to be seen.

"My opinion was, that nothing could be done in this case, and that the child would for ever be blind.

"About a month afterwards the parents informed me there was some alteration in the child's eyes, and requested I would examine them again. I then perceived the opacity to be so much lessened that I could faintly discern the iris. In two months more the child could perceive light, and from that period the sight progressively increased; and before it was ten months old the recovery was complete.

"About three years after, another child was born of the same parents with exactly the same appearances. Having seen the progress of the first case, I concluded that in this the event would be nearly the same, and, indeed, so it happened in much about the same space of time.

"The manner in which the cornea acquired its transparency was, in these cases, remarkably curious: the external edge, first growing thin, soon after became clear and transparent; and after this manner the whole surface of the cornea brightened up, the centre being the last spot that recovered its transparency.

"Two years ago the same persons had a third child born with the same appearances, except that the opaque part seemed thicker, and that a short round ligament, about three-eighths of an inch long, and of the thickness of a probe, arose from the inner part of the upper eyelid, was attached to the inferior edge of the cornea, and, when the eyelid lifted up, acted in some measure like an additional muscle, by partly raising the globe of the eye. The ligament soon began to waste, and in about three weeks quite vanished.

"From having seen the two preceding instances of sight restored, and from the disappearance of this ligament, I thought the opacity of the cornea in this child too would soon begin to give way; but in this I was deceived; a whole year having elapsed before the smallest alteration took place.

"At the end of a year, the child seemed to be much diverted by passing its hand perpetually, with the fingers extended, before its eyes; and this has been its constant amusement from that time. The opacity has slowly diminished, but much of it yet remains.

"The child is now two years of age, but as it can find its way about the house, and distinguishes colours and different objects, by holding its head in a particular direction, I think, in time, the opacity will entirely disappear."

Deptford, Feb. 2d, 1790.

To recapitulate:—It is proved by the clearest testimony that in the younger of the two children whose cases I have described, the appearances existed within one hour of birth, and that there was not purulent ophthalmia. What clearer testimony can be obtained respecting any disease of the eyes being congenital?

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[*] Medical Communications, vol. 2, page 463.

The mother was led to examine the eyes of the elder boy on the day after birth, by observing when he was asleep a prominence of the eyelid arising from the staphylomatous cornea. The staphyloma still exists, and the mother says that the eyeball had the same appearance then, except that it was not so prominent. Her surgeon saw the eyes on the same day, and obviously considered them to be incurable by medicine.

In a third case (Mr. Walker's) the child on the second or third day after birth had perfectly opaque corneæ, and not any signs of existing inflammation.

I need not remark that it is impossible to explain the last two cases on the supposition of their having arisen from purulent ophthalmia after birth.

Instead of denoting the points of resemblance between the two first of these cases and Mr. Farar's, I must devote the remainder of this communication to an examination of the following judgment which has been passed upon the latter by Mr. Middlemore, of Birmingham:—

"The occurrence of extensive opacity of the cornea, as an effect of purulent ophthalmia of newly-born infants, appears to have led Mr. Farar into a *very curious blunder*. In a paper read before the Society for Promoting Medical Knowledge, he has very singularly pointed out, as a congenital disease, what I conceive to have been a mere effect of inflammation *." (Here Mr. Middlemore quotes Mr. Farar's paper verbatim, as far as the end of the *second* case.)

Whether congenital opacity of the cornea has ever occurred, is not merely a question of curiosity, but one of practical interest. Suppose a child to be born with the appearances I have described, and that they are not observed till several days after birth, would it not be very natural for the friends to suppose it became blind whilst the doctor was seeing it daily? In defence of himself, the doctor might urge that there had been neither purulent discharge from the eyes, nor other signs of present inflammation; yet, if he turned to his own experience, and to the literature of the subject, he would find that the cases (and those, perhaps, the only cases) that he could adduce on his behalf, are disbelieved by the only author that has noticed them—by the writer of a systematic work, whose province, as such, is to pass impartial decisions, and who, being a self-elected judge, may reasonably be supposed to have regarded the cases with the greater care before he passed judgment upon them.

These remarks lead me to speak of the origin of this communication. Until I met with Mr. Middlemore's pungent remarks upon Mr. Farar, I had never doubted that Mr. Farar's cases were of the same description as those I have sent you. A very careful examination of Mr. Middlemore's criticism has led me to state the following particulars whilst they are fresh in my mind, not with the expectation of establishing that Mr. Farar's were cases of congenital opacity of the cornea, but of showing that there is nothing unreasonable in supposing them to be such, and that Mr. Middlemore's decision is hardly warranted by the facts which were before him.

The question I have to consider is, whether Mr. Middlemore, in the year 1835, was warranted, as a critic, in coming to the conclusion given above, respecting Mr. Farar's cases.

1. Mr. Middlemore states that Mr. Farar has erred in supposing the cases he describes to be congenital.

2. Mr. Middlemore conceives that the appearances resulted from purulent ophthalmia after birth.

Mr. Farar gives three cases. Of the first he says that he did not see it until it was a month old. He neither says that the disease was, nor that it was not, congenital. Respecting the two remaining cases, Mr. Farar positively states that he saw them, and that they were "born with" these appearances. So far of Mr. Farar's expressed opinions. Respecting the first case, I see nothing whatever to countenance Mr. Middlemore's assertion, that Mr. Farar supposed it to be congenital. But to proceed to the two remaining cases: it may be objected that, although Mr. Farar has positively said that they were congenital, there is nothing unreasonable in supposing that his belief rested upon the testimony of others. Mark the construction of Mr. Farar's narrative. Of the first case he *says* that he did not see it until a month after birth, and *does not say* that the disease was congenital. Of the second and third cases he *says* that the disease was congenital, and *does not say* when he saw them. How is this "opposition" to be explained? Respecting the first case, I take it that Mr. Farar wished the reader to see that it was impossible for him to say whether the disease was congenital or not, *because* he did not see the child until it was a month old. And if Mr. Farar would not trust to the testimony of others at the end of one month, why should he rely upon it at the end of two or three days?

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* Middlemore — Treatise on Diseases of the Eye, London 1835, vol. i. p. 156.

Again: Mr. Farar does not allude at all to the employment of medicines, or to the existence of inflammation, or of purulent discharge.

Again: Mr. Farar's cases were published in the "Medical Communications." In the preface to the first volume of that work are the following words:—"The editors of this work having formed themselves into a society for promoting medical knowledge, by collecting and publishing such papers on medical subjects as they think worthy of being preserved, now offer a volume of their collection to the public." Mr. Farar's paper, therefore, was considered by this society worthy of being preserved. Here are the names of some of the members of the society: Dr. Carmichael Smyth, Dr. S. Foart Simmons, Dr. Keir, physician to St. Thomas's Hospital, Dr. John Sims, Dr. Bland, Dr. Osborn, Dr. Douglas, Dr. Willan, Dr. Crawford, Dr. Bromfield, Dr. Gartshore, Dr. Gray, Mr. Pearson, of the Lock Hospital, Mr. Henry Watson, surgeon to Westminster Hospital (the gentleman who presented Mr. Farar's paper to the society), Mr. Ford, of the General Dispensary, Mr. Cline, of St. Thomas's Hospital, &c. I need not say to you, Mr. Editor, that these are illustrious names: yet, illustrious though they be, if Mr. Middlemore's judgment be sound, they are fairly participators of Mr. Farar's "curious blunder." I ought not to say all of them, for that would imply that the most distinguished accoucheurs in London in the year 1790 (ten years after the publication of Mr. Ware's treatise on the purulent eyes of newly-born children) were so ignorant of purulent ophthalmia as not to have inquired at the time whether these appearances did not arise from it,—a conclusion that I cannot bring myself to admit; moreover, it would imply that, in a matter of testimony, a surgeon living fifty years afterwards is to be credited before the most distinguished physicians in London living at the very time. I have no means of ascertaining who were present at the Society when Mr. Farar's paper was read, or who decided that it was worthy of being preserved; but this is certain, that Dr. Carmichael Smyth read his well-known essay on "the danger of wounding the epigastric artery in the operation of tapping for ascites" on the same evening on which Mr. Farar's paper was read[*]. Is it not reasonable to suppose that Dr. Carmichael Smyth would hear Mr. Farar's paper? Several persons died in London about this time from wounds of the epigastric artery in tapping, and the attention of the profession must have been generally directed to the subject; is it not very reasonable to suppose that there would be a full attendance of the members to hear a paper upon such an important subject, and written by so distinguished a man as Dr. Carmichael Smyth?

Notwithstanding the direct assertion of Mr. Farar that the two last cases were congenital; notwithstanding that it is implied in Mr. Farar's essay that he saw the children immediately after birth; notwithstanding the increased credibility of Mr. Farar's testimony, arising from the circumstances under which his paper was read to, and published by, a society consisting of the most eminent medical men in London; notwithstanding the incredible particulars which such a conclusion involves, Mr. Middlemore says that the appearances arose from purulent ophthalmia, and that Mr. Farar made a "curious blunder" in supposing them to be congenital.

Mr. Farar either is, or is not, a blunderer. I earnestly hope, for the sake of the eminent men that would be implicated, and for the honour of medicine in Great Britain after the death of the Hunters, that he is not; but that he will be found to be the first who has described an exceedingly rare form of ophthalmic disease.

The following remarks, which I have

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[*] Medical Communications, vol. 2, p. 482.

translated from one of A. Louis's admirable essays in the Memoirs of the Royal Academy of Surgery of Paris, bear so closely upon the latter part of this communication, and appear to me to be so instructive, that with your permission I will conclude it with them. They prove how dangerous it is to attempt to reason away matters of fact. Upwards of 130 years after Covillard's book was published, M. Louis has to defend him from most unjust imputations. They are taken from "Mémoire sur plusieurs Maladies du Globe de l'Œil; où l'on examine particulièrement les cas qui exigent l'extirpation de cet organe, et la méthode d'y procéder*."

"Proptosis, or the complete protrusion of the eye from the orbit, presents so great facilities for amputating the globe, that it has been the general belief that there cannot be a case in which that indication is more urgent. Covillard† says that he was called to a man who had received such a violent blow on his eye with a racket-ball, that the whole circumference of the eyeball was completely thrust out of the orbit. One of the wounded man's kinsmen had got a pair of scissars to sever the parts by which the eye remained attached. Our author very luckily entered just in time to stop him: and, having put back, says he, the eye into its place as judiciously and promptly as he could, a cure followed. The pains he took were so successful that the wounded man was healed without any change or diminution of sight.

"Antoine Mâitre-Jan regards this case as false, but that it was founded on a fact of which the circumstances were boastingly exaggerated. He does not think that an eye completely thrust out of the orbit by a blow (although it held by some muscles or membranes), and united again in its socket, could be contained there, grow firm, and preserve its functions. After having examined all the circumstances of the case, and refuted without consideration every thing that he could at all find fault with, he gives us those points of it which he believes to be the true ones: the ball will have struck him, says Mâitre-Jan, upon the outer canthus, where the edge of the orbit forms a sharp and prominent ridge; the conjunctiva will have been torn: this laceration, and the ecchymosis which would accompany it, would be enough to make a man who has had but little experience in these matters believe that the eye had perished, and was necessary to be taken away. Covillard interposes, and succeeds in preserving this organ. He had no obstacle to reunion to contend with, and there is no marvel, continues Mâitre-Jan, in that the vision was not at all diminished; seeing that it is possible that the eyeball had not been bruised, or if it had been bruised, it was so slightly that no part of the interior could have suffered the least derangement.

"This discussion has been transcribed in modern works, with a perfect assent to the opinions of Maître-Jan. The motive is highly praiseworthy. Indeed, we ought to be on our guard, and weigh the accounts and practical facts narrated by authors, before we put our entire trust in them. It behoveth that by a judicious examination of them, it be determined whether they are reasonable, and consistent with experience. But the fact given by Covillard is not the only one of the sort: we read in the observations of Lamzwerde, a physician, at Cologne, of a cure like it in every respect: the injury was occasioned by a blow with a stick. The famous anatomist, Spigelius (whom we cannot suppose capable of being deceived by appearances), with the view of proving that the nerves are loose, and that they can be stretched very much, mentions the optic nerve as an example, in the recital of an injury done to a child by a blow with a stone, which had made the eye protrude so far out of the orbit that it hung down as low as the middle of the nose. A skilful surgeon took charge of this infant: the eye gradually reinstated itself, and so perfectly that no deformity ensued."

After mentioning the opinions of Guillemeau, Louis gives the following remarks by the anonymous editor of the fourth edition of Verduc's "Pathologie de Chirurgie," published in 1710: "When the eyeball has been driven from the orbit by external violence, we may easily replace it therein, but we ought not to promise to be able to retain it there, much less to preserve its functions; although there have been," continues he, "authors of so bad faith as to vaunt in their observations of having done these marvellous cures, such as Joseph Covillard, amongst others, a surgeon of Montelimard, whom M. Antoine, surgeon at Mery-sur-Seine, has very sagaciously confuted in the tenth chapter of the excellent treatise on the eye which he has lately published: for all these narratives of impossible cures are no more regarded by true judges than the blustering of the wind."

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* Mém. de l'Acad. Roy. de Chirurg. tome V. pp. 163, &c. Edit. en 4to. Paris, 1774.

† Observations Iatro-Chirurgiques, obs. xxvij. Covillard flourished about the year 1640.

Louis sums up by saying that "this author's scepticism and abuse will not prevail against the truth: Lamzwerde and Spigelius narrate facts which confirm that which has brought so many reproaches upon the celebrated surgeon of Montelimard."—I am, sir,

Your obedient servant,
Samuel Crompton,
Surgeon in Ordinary to Henshaw's Blind Asylum.

71, Grosvenor St. Manchester,
Nov. 7, 1840.

ON THE
DETECTION OF ALBUMEN IN THE URINE.

To the Editor of the Medical Gazette.

Sir,

Should you consider the following observations sufficiently interesting, you will favour me by inserting them in your periodical.—I am, sir,

Your obedient servant,
G. O. Rees, M.D., &c.

Guildford Street,
Nov. 30, 1840.

The important nature and varied relations of the diseased condition of kidney described by Dr. Bright as existing in connection with coagulable urine, have rendered it a matter of considerable interest to determine with accuracy the existence of albumen in the secretion. It is not very long ago that the sole fact of a specimen of urine becoming opaque by boiling was considered as a sufficient evidence of the existence of that animal principle: and it was not till the more extended observations of Dr. Bright were published that the concomitant testimony of coagulability by nitric acid and by heat was insisted upon as necessary for determining whether or not albumen was present. The fallacy of the test by boiling was first noticed by myself[*], and published in the Gulstonian lectures delivered by Dr. Bright (vide Med. Gaz. for June 1833, page 379). The explanation there given was only applicable to specimens which became less acid, neutral, or even alkaline, by heat. During some experiments, however, which were subsequently made by Dr. Barlow, a few specimens were observed which yielded a deposit on being boiled, which was redissolved by nitric acid, the urine being in these cases decidedly acid, and, moreover, increased in acidity by boiling, and the deposits on examination proving to be composed of the earthy phosphates. These instances at once set aside the conclusion that if urine remained acid after boiling, and coagulated during that operation, that then albumen was present; for here were acid specimens affording a precipitate by heat, composed of the earthy phosphates[†].

Upon this discovery, the strong necessity of using both nitric acid and heat, as concomitant tests of the presence of albumen, became still more evident, and both are now considered indispensable when investigating the albuminous condition of urine.

Another reason for using nitric acid in these examinations is, that albumen, when existing even in very considerable quantity, does not always coagulate by heat; for specimens of urine are not very uncommon in which the alkaline condition is such as to prevent precipitation by this test, notwithstanding that the addition of nitric acid produces a copious deposit.

From what has been premised it is evident that a knowledge of the acid or alkaline condition of any given specimen of urine can in no way assist us in determining whether or not it contains albumen, by applying the test of heat alone, if a *positive* result be obtained; for the coagulum may be caused by the earthy phosphates[‡], whether the urine be alkaline or acid; but the case is different when the result is *negative*, since acid urine never prevents the precipitation of albumen by heat, though alkaline urine may, and, therefore, a specimen, if shewn to be acid, and not coagulable by heat, may safely be declared free from albumen. This fact, if borne in mind, will frequently save the practitioner much trouble, as it is not always convenient to carry nitric acid to the bedside of a patient.

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[*] This reaction was known to Dr. Henry, and was mentioned by him in his work long before 1833. I therefore have not to claim any originality, though certainly I was the first who mentioned the fact in connection with this subject.

[†] For an explanation of this phenomenon see my letter in Vol. I. of the Guy's Hospital Reports, page 401.

[‡] The earthy phosphates, when precipitated from urine by boiling, are exactly similar to albumen in appearance.

Having stated the fallacies to which the test of boiling is subject, I shall proceed to those which render uncertain the indications afforded by nitric acid. It has been long known that where the lithates exist in urine in excess, that the addition of a small quantity of a mineral acid will occasion the deposit of lithic acid; but this is almost always of a brownish red colour, and in no way simulates in form or character the precipitate of albumen as produced by nitric acid, and cannot well be mistaken for it. I mention the fact, however, as part of the history of the subject. Nitric acid is frequently used to discover whether the precipitate afforded by heat be albumen or not, by adding it to the still warm liquor containing the coagulum obtained by boiling. In these cases, even if the precipitate be albumen, it is occasionally lost sight of by the uninitiated experimenter, and supposed to be dissolved, though, in reality, it remains suspended. This mistake arises in one of two ways; either the flocculi (which generally become darkened or corrugated) are carried up into the froth occasioned by the effervescence which occurs on the addition of nitric acid to the heated urine, or these corrugated flocculi (when the effervescence has not been so strong) remain in their altered condition in the fluid, and are entirely overlooked by a careless or hurried experimenter. I should not have mentioned these sources of error, which might naturally be considered improbable, but that I have more than once had occasion to observe their occurrence, and that too in the hands of practitioners not altogether unused to the test tube and spirit lamp. The last source of fallacy that I shall mention is one which has led to one of those loose unsupported assertions in which our profession abounds, and which have not failed to attack the important discovery of Dr. Bright, by declaring that albumen exists in many conditions besides in the form of diseased kidney which he has described. That this may be the case is certainly not quite impossible; but the facts which have as yet come under my observation, in support of such an opinion, have proved to be as imperfect as that to which I have above alluded, viz. that patients who take copaiba have always an albuminous condition of urine induced. This statement has, I presume, originated in the fact that when copaiba has been taken (and more especially in an alkaline vehicle) the urine becomes coagulable by nitric acid; at least I have found it so in four consecutive cases which I have examined, and the cloudiness produced bore a great resemblance to albumen, and might be easily mistaken for that principle. These specimens, however, were not coagulable by heat, and were acid—a fact which alone might have assured the observer that albumen was not present. As some further history of this condition of urine may be interesting, I will briefly relate some observations which I made with a view of proving completely the absence of albumen, and of ascertaining the cause of the precipitate obtained by nitric acid.

Four specimens of urine from patients taking copaiba were similarly treated as follows:—

1. They were found acid on being tested by litmus paper.
2. Heat to the boiling point occasioned no opacity.
3. Nitric acid caused a distinct cloudiness. In two of the four specimens it was of a very dense character. The specimens so tested, when set aside, however, for twenty-four hours, were found not to have cleared above by the subsidence of the precipitate.
4. Acetic acid caused a very slight cloudiness, which was not increased by the addition of a solution of the ferrocyanuret of potassium.
5. Ether digested for two days on these specimens of urine was found to have dissolved out a substance (apparently resinous in character) smelling strongly of copaiba, and the urine, on being tested after having undergone this cleansing, was found to have lost the property of becoming clouded on the addition of nitric acid.

It may be well to mention that specimens of urine of this kind, if they contained earthy phosphates in abundance, would afford precipitates both by nitric acid and by heat, and lead many to the conclusion that albumen caused the reactions. I am at present engaged in an inquiry as to the existence of other resinous substances in the urine, which may tend to invalidate the nitric acid test, and shall take an early opportunity of publishing the results. I wish, however, to state here that specimens of urine which I obtained from five individuals, who were taking guaiacum resin, have afforded no reaction with nitric acid.

OBSERVATIONS
ON THE
ADVANTAGES PRESENTED BY THE EMPLOYMENT OF A STETHOSCOPE WITH A FLEXIBLE TUBE.

By Golding Bird, M.D. A.M.

Member of the Royal College of Physicians; Lecturer on Medical Physics at Guy's Hospital; and Physician to the Finsbury Dispensary.

[*For the London Medical Gazette.*]

It would be no slight labour to account for the principles dictating the various constructions of the stethoscope, from the time of the discovery of auscultation by Laennec, to the present period; nor is it certain that an investigation of this kind would be worth the trouble, as it is by no means very evident that every variety of the valuable instrument alluded to has been based upon any definite scientific principle. It is, however, evident that the stethoscope must act in one, or both, of two ways, in conveying to the ear the sounds produced during the process of healthy and abnormal respiration, viz., the sonorous vibrations must be propagated from the sides of the chest to the ear, through the solid material of which the instrument is composed; or through the column of air contained in its centre, or, lastly, through both these media at once. To enable us to appreciate these three cases, it is only necessary to assume that any given portion of the surface of the chest is a vibrating plane; the particular manner in which the acoustic vibrations are communicated from the included structures not being an essential point for consideration. Taking this view, then, if we place the smooth end of a solid cylinder of wood upon the surface of the chest, and apply the ear to the other extremity, every molecule of the wood will assume a vibratory movement, and thus sounds produced in the chest will be propagated, more or less modified, to the ear of the observer. Hence a simple unperforated wooden cylinder becomes an excellent stethoscope, and if care be taken to choose a cylinder in which the fibres run as nearly as possible in a direction parallel to the long axis, we can scarcely wish for a better instrument; the only conditions necessary for its successful application being the accurate approximation of one end of the piece of wood to the surface of the chest, so that every particular line of molecules, of which the cylinder may be presumed to be composed, should be thrown into a state of acoustic vibration of equal intensity, and simultaneously with each other.

A cylinder of solid metal may be substituted for one of wood in the construction of a solid stethoscope, but certainly without advantage; for in addition to many other sources of inconvenience, it will, from the pressure exerted by its mere weight upon the surface of the chest, tend materially to damp those vibrations which it is intended to propagate to the ear; and, moreover, whilst the conducting powers of tin, silver, cast iron, brass, copper, and hammered iron, for sound, are respectively as the numbers 7·5, 9·0, 10·0, 10·5, 12·0, and 17·0, that of wood varies, according to the direction of its grain, from 11. to 17. Hence, under its most unfavourable state for aiding the propagation of sound, it excels brass as a conductor, and in its best state equals hammered iron.

In the second case, in which the stethoscope is supposed to act by a series of alternate condensations and dilatations produced in the column of air contained in the centre of the instrument, there are certain conditions to be observed to insure the successful application of an instrument acting in this manner. The margin of the conical cavity at the end of the stethoscope must be applied as accurately as possible to the surface of the chest, so that the full effects of the vibrating surface on which it is placed may be exerted on the base of the column of air, included between the thoracic parietes at one end, and the ear of the observer at the other. It is obvious that in the stethoscopes generally employed we can in no case have the complete and simple effect arising from the oscillatory movements in the included column of air exerted on the ear, for a series of acoustic vibrations will be propagated along the solid sides of the instrument, and thus two series of sounds, traversing different media, will reach the ear, constituting the third mode in which a stethoscope may be supposed to act. On a superficial view it might be presumed that the fact of having two conducting media in a stethoscope would not be without its value, and indeed it has been asserted that we have air in the centre of the instrument for the conducting of sounds produced by the vibrations of elastic fluids within the chest, and wooden sides for the purpose of conveying the sounds emanating from the solid structures. These ideas are too absurd to require refutation, for from whatever source the acoustic vibrations first arise, and through whatever media they move before reaching the parietes of the chest, they all ultimately produce the effect of throwing the latter into vibration; and it is these which the stethoscope can alone convey to the ear.

It is very evident that unless the acoustic vibrations, propagated through the central column of air, and the solid sides of a wooden stethoscope, do occur simultaneously, and impinge upon the membrane of the tympanum in similar places, interference of sound must occur,* and thus the sound, eventually audible, differs from that we should hear providing a solid or aerial medium alone existed between the ear and the walls of the chest. When we also recollect the impracticability, in many instances, of applying the edges of the conical cavity of the stethoscope accurately to the sides of the chest, on account more particularly of the inconvenient position in which the head has often to be placed in using a rigid and inflexible instrument, we see another source of loss of sound.

If a wooden stethoscope be preferred, undoubtedly the simpler the construction the better: it should be constructed of one piece of light wood, in the manner recommended by Dr. Billing,* excepting that the ear-piece should be rendered very slightly convex, and somewhat larger than he has suggested. One of the length of four inches, having a cup-shaped cavity, with a carefully-rounded margin an inch in diameter at one end, the other extremity being slightly convex, and about two inches in diameter, possesses, in addition to its extreme portability, every advantage which a solid stethoscope can offer. Nothing exceeds, or even equals, the simple application of the naked ear to the chest for all purposes in which the examination of sounds over an extended surface is alone required; the stethoscope being only necessary for the purpose of localising sounds, and, for appreciating those depending upon impulse, a simple cylinder of wood will answer just as well as a perforated instrument.

For the isolation of all the sounds generated during respiration, or the action of the heart, whether in health or disease, no form of stethoscope can equal, for convenience of application, as well as for permitting the due appreciation of sounds, one furnished with a flexible tube, providing it be so arranged as to permit the acoustic vibrations to be propagated to the ear through the column of air it includes. For this purpose Dr. Clendinning, and I have been informed also, Dr. Stroud, have for some time past employed the common snake hearing-trumpet. This instrument is much longer than is necessary, and hence is inconvenient in application, as well as from its diminishing the intensity of sound by causing it to traverse an unnecessarily long column of air: the little tube introduced into the meatus is also very disagreeable in practice, and not unfrequently productive of pain and uneasiness to those using it.

The following is a description of the modification of this instrument, which I have for some time employed, and which I am anxious to recommend to the notice of my professional brethren, as one which will be found most convenient in practice. The end which is applied to the chest consists of a thin cup of ebony, an inch in diameter, and carefully rounded at its edges: a flexible tube, from sixteen to twenty inches in length, formed of a spiral iron wire, covered with caoutchouc, and bound tightly round with silk or velvet, having an internal diameter of about one-fourth of an inch, is fixed into the apex of this cup: the other end of the tube is cemented into a perforated ebony ball, on the top of which is screwed a slightly concave plate of ivory two inches in diameter, also perforated in its centre.

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* Vide Elements of Natural Philosophy, 1839, p. 129.

* Principles of Medicine, third edition, p. xvii.

When this instrument is used, the ebony cup should be held, between the fingers and thumb of one hand, against the walls of the chest, and thus, with the utmost facility, and without producing unnecessary pressure, a tolerably air-tight approximation is effected. The ebony ball at the other end should be held in the other hand, and the ivory plate closely applied to the ear. In this manner we have a column of air, bounded at one extremity by the vibrating surface of the chest, and at the other by the membrana tympani, which thus becomes placed in the position most favourable for assuming vibrations throughout its whole extent.* The cup of ebony has its vibrations *damped* by the pressure of the fingers grasping it, whilst the covering of silk or velvet performs a similar office, with sufficient accuracy, for the spiral wire forming the tube of the instrument, whilst from the convenient position in which the physician can place himself with regard to the patient, the necessarily close approximation of the end of the stethoscope to the surface of the chest may be effected. In addition to this, the intensity of sound does not appear to be sensibly diminished by the flexure of the tube, and thus we can auscultate the sides and back of the chest by a very slight movement of the body of a patient whilst in the recumbent position. Indeed, no one can very well appreciate the convenience, or, if I may be allowed the expression, the luxury, arising from the use of an instrument of this kind, except those engaged in Dispensary practice; for when called upon to visit a patient lying on the floor, or on a low and miserable bedstead, in too debilitated a state to be raised into the erect position with safety, the physician can examine the state of the respiratory organs without risking his patient's safety by raising him, or his own comfort by placing himself in a position parallel to that of the poor sufferer whose condition he is attempting to alleviate.

It is perfectly true that by aid of the instrument which I now take the liberty of recommending to the profession, certain sounds of the heart, depending upon impulse, are not so perceptible as by means of the solid stethoscope, and in these cases the latter instrument, or the naked ear, should be employed. This, however, so far from being an objection, rather adds to the utility of the flexible stethoscope, for by isolating impulse from sound, I am quite convinced that certain soft murmurs existing in some states of cardiac disease, scarcely, or not at all, audible when the solid stethoscope is employed, become very distinct when the attention becomes concentrated on the sound alone by means of the flexible instrument. I have been much gratified by finding that my own experience has been supported by that of others, and that the flexible stethoscope, with the flat or slightly concave ear-piece, which I first used at Guy's Hospital in last June, is now employed by many practitioners for the very reasons to which I have above alluded.

22, Wilmington Square,
Dec. 5th, 1840.

NEW METHOD OF CURE FOR SHORT-SIGHTEDNESS.

To the Editor of the Medical Gazette.

SIR,

WHEN my "account of a new method of curing short-sightedness" appeared in your journal of August 28th, 1840, I attended a gentleman for an ophthalmic complaint, who was at the same time affected with a considerable degree of myopy. As this defect of his eyes had always been very annoying to him, he was happy to hear that there was a cure for it, and after having perused the above-mentioned account, in your journal, he lost no time in giving it a trial. As this is the first case in which Professor Berthold's method was employed, I hope you will excuse the rather long account; an early insertion of which in your valuable journal will greatly oblige, sir,

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* Müller's Physiology, by Baily, p. 1283.

Your obedient servant,
Aug. Franz, M.D.

1, Golden Square, Dec. 4, 1840.

Mr. J. W——, aged 24, of rather a scrofulous diathesis, having never been affected with inflammation or any other disease of the eyes, enjoyed a perfect sight up to the 12th year of his age, when he first perceived that distant objects appeared to him less distinct than they previously had done. During his education at school this condition of the eyes became gradually worse, until, in the course of a few years, a confirmed myopy established itself, which obliged him to have recourse to a pair of weak concave glasses. Being much devoted to study, and always holding the book in reading very near the eyes, and likewise neglecting to pay proper attention to his general health, caused him during puberty to suffer greatly from a sensation of fulness in his eyes, which had for its consequence a temporary intolerance of light, a slight weakness of sight, and a more rapid increase of the myopy, for which he thought the use of more powerful glasses would be the best remedy. He therefore, in his 16th year, changed his first pair of glasses for a higher power, but finding after some time that these also refused to aid his sight sufficiently, he changed them again, and this he was for the same reason necessitated to do at three different times, so that the last glasses were double concaves of six inches focal length, which he was in the habit of wearing constantly.

There was no ground for supposing that this gentleman's eyes were hereditarily predisposed to this defect, as he assured me that neither his parents, brothers, or sisters, had ever been affected with near-sightedness. Except a slight want of elasticity in the eyeballs, when lightly pressed upon, nothing particular could be observed either in their shape or external appearance: they were not unusually prominent; the convexity of the cornea, and the size of the aqueous chambers, appeared normal: the pupil was certainly larger than natural, which is always the case in myopic eyes, but the iris moved freely to the different degrees of light, and lay when expanded in a regular or vertical plane, *i.e.* the inner margin did not incline forwards or towards the cornea, which is said to be the case in some myopic eyes, and to be a sign of too great a convexity of the lens. No difference existed in the degree of near-sightedness of both eyes. The power of adjustment was not wanting, as was proved by the circumstance that the patient used the same glasses for seeing distant and near objects, and, moreover, that he could read common print by means of the glasses at a distance of five and sixteen inches, almost equally well; but it appeared that the power of adjustment did not properly accommodate itself to the quantity of refraction in the transparent media of the eye. The myopy in this case was, therefore, merely want of proper relation in the visual apparatus, as it, in fact, always is, when the power of adjustment is still present in the myopic eye. The slight degree of weakness of sight, on the contrary, was an actual disease of the sensitive part of the eye or the retina, which was deficient in energy and continuance of action. The two complaints were, as is evident, of distinctly different nature, although both derived their origin from the same causes. These were, an improper management of the visual functions; an over-exertion of the visual organs by constant study; a too early and injudicious selection and use, and a too frequent change of glasses; and lastly, neglect of the general health, and especially of counteracting the determination of blood towards the head during the time of puberty. From what has been said, it may be concluded, I think, with tolerable certainty, that the myopy, at least in this case, was not an hereditary malformation of the eye, which many ophthalmologists maintain it always is, and as such may either be remedied, or made permanent, by a judicious or injudicious use of the eyes.

In the beginning of June last this gentleman suffered from scarlatina, with a decided affection of the brain and its membranes. While recovering he exerted his eyes too early and too much by reading and writing, the consequence of which was an excessive intolerance of light, with spasms of the lids, and an increased secretion of tears, for which complaint he first sought my advice. Opium rubbed in round the eyes; poultices containing Cicuta applied over them; two leeches to the nostrils, several times repeated; every second night a pediluvium; a few warm baths, and internally cooling aperients, were ordered. After these means had been continued for about a fortnight the local remedies were changed for the ophthalmic fountain*. Cinchona and iron were given internally, and besides, fresh-water baths and country air recommended. By this plan of treatment the photophobia, the blepharospasmus, and epiphora, were not only cured, and the existing weakness of sight greatly improved, but the visual organs were also placed in a favourable condition for the treatment of the myopy.

On the 2d of Sept. the myopodiorthoticon was for the first time brought into use. It was regulated to that distance of vision where the patient could read large print with facility without glasses, which was in this case more than four inches and a half. The spectacles were altogether dispensed with. He was directed to look frequently at distant objects: all occupations with near objects, except reading and writing with the apparatus, were forbidden; the employment of the ophthalmic fountain was continued twice a day, for which the Pyrmont waters were used; the leeches applied to the nostrils three times, repeated; a pediluvium, and some cooling aperient, now and then ordered, and the diet properly regulated. As the patient's occupation consisted chiefly in reading and writing, he pursued it daily without interruption. The apparatus was afterwards altered, in the manner described in my first paper on this subject, published in the Med. Gaz. August 28th, excepting that the distance of the cross-bar from the book read was increased in the beginning every 2d or 3d day about one-half or a whole line, then every day about one, and afterwards two or three lines, by which means the distance of vision became gradually elongated in the same proportion as these alterations of the instrument were instituted, so that now, after the lapse of three months, the patient reads the same print at twelve inches and a quarter distance, which he at the commencement of the cure was able to read only at four inches and a half. In the same proportion has the sight also been improved with regard to objects more distant, so that he sees now those objects well defined and more distinct of which he could formerly perceive confused outlines only, and he does not require the use of glasses even when looking at very remote objects. When reading or writing, the power of vision continues, moreover, its regular function for a longer time than before, *i. e.* the sight does not become so easily fatigued, and whenever he feels it somewhat tired, one or two minutes' rest bring it immediately back to its normal strength. Although the sight is at present in a satisfactory condition, he intends to continue the use of the instrument some time longer, in order to elongate it still more for near objects, but more especially to bring it to a higher perfection in regard to remote objects, and the improvement already gained leaves no doubt that he will successfully obtain the desired end.

It cannot be denied that this mode of treating near-sightedness requires patience and perseverance, but, when we consider the annoyance the complaint is to some persons, and its severity in some cases, it is, in my opinion, well worth the trouble to submit to the treatment: so much the more so as we had no actual cure for myopy, and, as is proved by the present case, this new method has been attended with perfect success. The practical worth of the ingenious construction of the myopodiorticon by Professor Berthold, cannot, therefore, be doubted.

Another advantage is likewise derived from the cure of myopy, which, although of less importance, should not be overlooked, viz. that the person is freed from the inconvenience of wearing glasses, and from the annoyance of being compelled to clean them frequently, as, for instance, when coming from the cold into a warm room; and lastly, from being obliged to move the head in the exact direction of the intended object, which always causes some bodily exertion. It should, moreover, be remembered, that spectacles, as Prof. Beer said, are but crutches for the eyes.

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* Beer and Himly have proposed contrivances of different kinds for the purpose of directing a small stream of water against the eyes, but they are more or less complicated: that of Prof. Jungken answers the purpose quite as well, and is by far the simplest. His ophthalmic fountain is made of a common barometer-tube, about three feet in length, the upper extremity being bent backwards, in the form of a hook, six inches long; the lower, bent in the same form, is but two inches long, having a very small opening. After the upper part has been immerged in a tumbler filled with water, placed at a convenient height, and the air been then drawn out of the tube through the opposite part, the water follows in a continued stream, over which the patient holds his eye, either at some distance from the opening of the tube, or close to it, if a more powerful action is intended. Cold spring water, or water impregnated with carbonic acid gas, may be used.

LATERAL CURVATURE OF THE SPINE.—STRABISMUS.

To the Editor of the Medical Gazette.

SIR,

I HAVE just seen Mr. Child's report of his operation for lateral curvature of the spine, by division of the muscles of the back; and whilst I am gratified to find that other British surgeons are directing their attention to what I consider a most valuable and interesting operation, I must beg leave to correct a mistake into which he has fallen in stating that the operation had "never before been performed in England." I have performed the operation myself *four times*: the first case was on Friday, the 13th of this month, which is *five days before* Mr. Child performed his; so that, whatever credit may be due to the *first* performance of the operation in England, as far as I at present know, belongs to me.

A matter of still more general interest is the fact that all my four cases are going on most satisfactorily; one, a boy, seven years and a half of age; another a young lady of twenty, who had been severely afflicted with spinal curvature for eleven years; another young lady of twenty-two, who laboured under the complaint for eight years; and the fourth a girl fourteen years of age, who had suffered from that affection for many years.

As the result of the first case is, in a great measure, already attained, it may be interesting to your readers to have a slight sketch of its history and progress.

Master George B., seven years and a half old, became weak in his lower extremities about twelve months since, which rendered him liable to stumble when either walking or running, especially if there were the slightest inequality in the ground. This debility of the limbs increased until the beginning of February last, when of a sudden he was entirely deprived of the use of the lower extremities. Two eminent surgeons were consulted, who prescribed for the case, but without any benefit. One proposed placing issues at both sides of the spine, and confining the patient in the horizontal position for two and a half or three years. This practitioner, however, expressed himself very doubtful whether even this mode of treatment would actually restore to the patient the use of his limbs: the father would not, therefore, consent to adopt such a course with prospects so chilling. The boy was brought to me on Friday, the 13th of Nov. 1840. His situation was as follows:—General health tolerably good, but destitute of all power of voluntary motion in the lower extremities; they were, moreover, cold, and almost devoid of sensibility. The fifth, sixth, and seventh dorsal vertebræ, formed a very prominent projection backwards, and below there was a considerable *lateral curvature;* the convexity of the arch being towards the left. I considered that the division of the muscles on the concave side of the arch would at once relieve the tendency to *lateral* curvature, and at the same time take off part of the strain from the posterior curvature, and that this, with the discharge which would take place, might relieve the diseased state of the vertebræ and spinal cord. The father immediately consented to have the operation performed, and held the boy on his knee whilst I performed it, in the following manner:—The patient's body being a little bent forward, I passed a small bistoury under the muscles on the *concave* side of the curve, as close to the ribs as possible, directing its point onwards to the spinal column, when I elevated its point and withdrew the bistoury, so as to cut through the muscular part without injuring the integuments; then, reversing the cutting edge, I made sure of every fibre being divided, at the same time taking care not to injure the intercostal muscles. The operation occupied about half a minute, gave but little pain, and so decided were its results that the father instantly exclaimed, "Why, the back is straight already;" and it was so, as far as the *lateral curvature* was concerned. I am happy to be able to add that now the posterior curvature is much diminished; the lateral curvature evidently gone. The wound was not the size of a leech-bite, and is now closed; the divided muscles reunited; and the patient is this day (being the seventeenth after the operation) able to walk across the room.

I intend shortly to send you an account, with cases, of an operation which I have repeatedly performed, with invariable success—as some of the most eminent members of the profession can testify—for a variety of talipes of an entirely paralytic nature, without contractions of any of the tendons, for which the Stromeyerian operation could be of no service—an operation which I believe will be found never to have been performed by any one but myself, or those to whom I have shown it. I may farther add, that my researches on this subject have happily led me to a method of treating paralysis generally, with a success so remarkable that it must be seen to be credited. Its effects have been witnessed by hundreds, including several eminently scientific gentlemen; and when I can command as much time, and have made some farther experiments, I shall deem it a duty I owe to the profession and humanity, to publish on this subject, as well as on the operation of talipes generally, as I am pretty certain I have had far more experience in the treatment of talipes than any person in the kingdom; the operation being almost a daily occurrence with me. I have even had as many as *seven new* cases in *one day*, beside contractions of the legs, arms, and other parts of the body. My total number of operations for talipes amounts to about 200, embracing every age from fifty-three years to *two days* old. I have been enabled not only to improve the surgical part of the operation, but also to simplify the mechanical apparatus, so as to render it more effective than the Stromeyerian boards, and Scarpa shoes, used by them. My apparatus for extension costs only about *one shilling* for *each foot*, whereas the Stromeyerian boards, with pads and straps and Scarpa shoe, costs about *five pounds ten shillings* for *each foot*—an expense sufficient of itself to preclude the possibility of the poor being cured of that distressing and unseemly deformity.

On Strabismus I can also furnish some important hints, having operated on about 450 cases with the most satisfactory results, embracing every age from 63 years to 22 months. In ordinary cases the securing and dividing the tendon does not occupy me more than from a quarter to half a minute, and so little injury is inflicted on the eye that out of all the number I have operated upon, except in a few cases, arising from *great imprudence on the part of the patient*, none of my operations have been followed by consecutive inflammation worthy of notice. I have never required, during the after treatment, to put a single patient to the pain of applying a caustic to the eye. My present mode of performing the operation is this—supposing the case to be an internal squint. The patient being seated on a chair, with a back sufficiently high to support the head, and the eyelids kept apart by spring specula, I desire the patient to look outwards, and then with a small blunt hook pinch up a fold of the tendon and conjunctiva near to the caruncula lachrymalis, which I then divide at the same time by a pair of sharp scissors a little anterior to the point of the hook. It, of course, requires a little dexterity to get the knack of catching the tendon without injuring the conjunctiva, and, perhaps, to beginners, it might be as well to adopt the plan I at first pursued, to pinch up a fold of the conjunctiva with a small pair of forceps, and snip it across so as to admit the point of the hook, which is then to be used, and the operation completed as, already stated. I always apply a fold of calico and bandage over the eye for a few days, which is kept wet with lotion, and the results, as already stated, have been satisfactory in the highest degree. I am quite certain that the whole of the operation, as now described, inflicts less pain than the application of the hooks alone for fixing the eye, which have been used by many preparatory to the cutting part of the operation; and I can confidently say they are wholly unnecessary, as the eye may be commanded with the utmost certainty by pinching up the tendons as I do.

In some very extreme cases, however, notwithstanding the tendon has been completely divided, there may be a slight tendency to the original maldirection of the eye, arising from the relaxed state of the antagonist muscle after the position of the eye has been so much altered by the new direction given to it.

In such cases I have found a second division of the tendon first cut, with care to keep it in the proper direction during the healing process, has always been sufficient to correct this, if the other eye is not at fault, with the exception of a few cases where it arose from absolute paralysis of the antagonist muscles.—I am, sir,

Your obedient servant,
JAMES BRAID,
M.R.C.S., Edin.

10, Piccadilly, Manchester,
30 November, 1840.

DIVISION OF THE MUSCLES OF THE BACK

IN A CASE OF LATERAL CURVATURE OF THE SPINE.

To the Editor of the Medical Gazette.

SIR,

THE insertion in the last number of your journal of Mr. Child's interesting letter, in which he describes a new operation for lateral curvature of the spine, induces me to transmit to you the particulars of a case in which I performed a similar operation so far back as September the 11th.

The patient was a youth, aged 17, who, being the son of respectable parents, had not been under the necessity of engaging in manual labour. He suffered from an extreme lateral curvature of the spine to the *left*, (a distortion much rarer than the *right*), which implicated the lower cervical and six or seven upper dorsal vertebræ. The trapezius and rhomboid muscles of the convex side could be felt as a thick mass between the spine and the scapula, while those on the concave side were attenuated and scarcely perceptible. The ribs on the right side were flattened, and comparatively motionless; on the convex or left side they were considerably excurvated.

My patient's health was so delicate that absolute confinement would have been injurious. He was, therefore, directed to keep the supine or rather lateral position for a few hours daily: to have the right or concave side shampooed, and rubbed with a stimulating liniment; and to take such exercise as might call the respiratory muscles of that side into action. He also took carbonate of iron. In three months, under this plan, his health was much improved: the flattened ribs became more convex, and took a more active share in the respiratory movements, and he gained considerably in height. He still, however, had very considerable deformity, which remained unaltered by the above treatment. I then recommended the use of mechanical means, and proposed Guérin's operation, and ultimately performed the latter on the 11th of September last, as stated above. I proposed the division of part of the trapezius and the rhomboid muscles, and for this purpose I placed the patient prone upon a bed, with his left arm hanging over the edge, and a pillow under his chest. I then pinched up a fold of skin at a point midway between the postero-superior and inferior angles of the scapula and the convex border of the spinal column, and slipping the left side of a long narrow-curved bistoury under it to the hilt, in the direction of the trapezius, I turned the edge of the bistoury to the muscles, depressed the point, and cut about an inch and a half out. I then allowed the fold of skin to fall, and finished the incision. The remaining undivided portion of the trapezius and rhomboid muscles was divided by a second incision. I could feel the retraction of the muscles at the moment of division very distinctly. Arterial blood flowed freely from the two punctures, but on compressing them with a pledget the hæmorrhage ceased instantly and entirely. An elastic swelling immediately occupied the line of incision, formed, no doubt, by effused blood; and subsequently this part appeared yellow, as if it had been bruised. The patient scarcely complained. On the third day the punctures were cicatrized; on the fourth he was walking on his crutches as usual, having experienced no pain or indisposition whatever.

A short notice of this case may be found in a work on the Nervous Diseases of Women, which I published a few weeks ago, and in which the pathology of spinal distortions and of spinal neuralgiæ is discussed. I also communicated the fact of my having operated, to M. Guérin, more than a month since.

I believe any farther discussion as to the *safety* and *practicability* of this and similar myotomical and tenotomical operations is quite unnecessary. Judging from my own experience I would venture to say, that they are less dangerous, and really require less skill, than venesection. It is of much greater importance to ascertain in what cases they are actually *useful*, at what period they should be performed, and with what curative means they should be accompanied, and what is the extent to which the functions of the divided muscles are impaired. Observation and experience can alone instruct us on these points. If we consider the results of accidental injuries done to muscular and tendinous structures, as in contusions, dislocations, and fractures, there is some ground for fearing that the divided muscles may, at some uncertain period subsequent to the operation, become the seat of neuralgic or rheumatic affections.—I am, sir,

Your obedient servant,
T. Laycock.

York, Dec. 5, 1840.

DISSECTION OF A CLUB-FOOT.

To the Editor of the Medical Gazette.

Sir,

I enclose you an account of the dissection of a case of club-foot, in which the sole was turned inwards and upwards, the patient treading on the upper surface of the os cuboides, which had become rough and irregular, giving rise to an extensive ulceration on the instep, for which the limb was amputated; but the case did not do well, owing to the formation of abscesses in the thigh, and a subsequent attack of hemiplegia.

I am, sir,
Your obedient servant,
Philip B. Ayres, M.B.
M.R.C.S.

Thame, Nov. 27, 1840.

Tendo Achillis very much shortened, preventing flexion of the ankle-joint.

Tendon of the tibialis anticus very short, preventing eversion of the foot.

Tendon of the extensor longus pollicis rather shortened, but nearly natural.

Tendons of the extensor longus digitorum natural.

Tendon of the peroneus tertius elongated and expanded.

Extensor brevis digitorum flabby and very thin, but otherwise natural.

Tendon of the flexor longus pollicis rather shortened.

Tendons of the flexor longus digitorum somewhat shortened, but very slightly so.

Tendon of the tibialis posticus slightly shortened.

Tendons of the peronei natural.

Short muscles of the foot natural.

The bones of the foot, although the patient was 27 years of age, and the disease congenital, were apparently in a natural state, and would certainly, judging from their appearance, have allowed the foot to have regained its natural position had the opposing tendons been divided. The principal opposing tendons were those of the gastrocnemii and soleus, and the tibialis anticus, so that by dividing these tendons, the remainder, which were nearly in their natural state, would have permitted the foot to have righted itself. I am not aware that there is any novelty in this case; but as in new operations every fact possesses some value, I have sent this dissection for publication.

ANALYSES AND NOTICES OF BOOKS.

"L'Auteur se tue à alonger ce que le lecteur se tue à abréger."—D'Alembert.

Practical Remarks on the New Operation for the Cure of Strabismus or Squinting. Illustrated with Lithographic Engravings. By Edward W. Duffin. Churchill, 1840.

The numerous excellent communications on the subject of strabismus which have recently appeared in this journal, from the pen of Mr. Duffin, render it unnecessary that we should review in detail the contents of the volume, the title of which stands prefixed to this article. To do so would, in fact, be to reprint a great deal of what has already been presented to our readers in these pages; since the papers or communications alluded to may be said to form the groundwork of the essay in question. Thus far, however, we may observe, much new and important matter has been incorporated with the original articles, and a great deal that was speculative and illusory has been very judiciously rescinded; so that the whole, revised, and in a more comprehensive and connected form, is now presented to the professional public.

We do not ourselves pretend to be so

learned in optical science, or sufficiently conversant with the numerous interesting and curious facts that we are aware have of late been revealed in reference to strabismus, to discuss the several queries suggested by the author. Neither are we prepared to canvass the merits of the different theories he advances, to account for the diversified morbid changes that, it would seem, occasionally present themselves as pathological complications of the various forms of this affection. A knowledge of these, however, we conceive to be important, if not essential, to those who undertake the cure of such cases. The numerous candidates for operative popularity, if we may be allowed the expression, who have of late joined in the strabismal mania, and favoured the public with the results of their practice, have hitherto led us to believe that failure in the performance of the new operation—or any thing short, indeed, of the most complete success—is next to impossible, even in the hands of the merest tyro in surgery. But on perusal of Mr. Duffin's remarks our opinion in this respect has undergone considerable modification; and we now feel convinced that, if the truth were told by every operator with the same candour and openness that he has manifested, it would be seen that, although in almost every instance an improvement may be effected in the personal appearance of the patient, yet, in comparatively few cases, is the deformity so completely remedied that the cure can be pronounced to be perfect. By this we mean it to be understood, that the eyes, whether one or both be operated on, recover their normal direction, freedom of motion, and harmony of action, without exhibiting any unusual appearance that could attract attention. That it would be possible to attain this degree of perfection under all circumstances, or even in the majority of cases, no reasonable person, we should think, would be hardy enough to maintain; yet thus far no other writer has had the candour to admit, or point out the contrary: while, on the other hand, we perfectly coincide with the author that many cases in which this standard might be attained are left imperfectly cured for want of judgment, practical knowledge, and surgical dexterity on the part of the operator. From what we have stated, it will be seen that the volume apparently bears the impress of truth, and is on this account especially entitled to notice. The author's object does not appear to have been to court popularity, though doubtless, like other professional writers, he has had an eye towards making himself known, but to communicate useful and practical information; and this, from the extensive experience we have reason to believe he has enjoyed, it may be presumed he is competent to do. The remarks are throughout strictly professional, and free from quackery. Were they otherwise, we should at once distrust them. The cases exemplify equally failure and success; and the difficulties that may beset the operator under particular circumstances, and foil his best endeavours, whatever his talent and address, are fairly admitted and forcibly insisted on. "No operation in surgery," he justly observes, "can, by any possibility, be always equally fortunate in its results, although that for the cure of strabismus may be regarded as the most uniformly so of any:" and we feel satisfied every well-wisher to his profession will respond the following sentiment expressed in the prefatorial remarks:—"He who exposes the real value of any curative means by honestly stating the true ratio of success that attends their employment, or who points out the source of failure—be it in only one untoward case—confers a greater benefit on the public, and contributes more to the legitimate advancement of the cause he espouses, than the man who unblushingly blazons forth a hundred examples of untarnished success, while he conceals all the incidents of a contrary nature, which, if detailed with equal fairness, and the same circumstantiality, might serve as most invaluable beacons of safety to his professional brethren."

The remarks, we have said, are exemplified by numerous cases. Such only, however, have apparently been selected as are calculated to explain unusual circumstances attending the operation. The more interesting of these are illustrated by neat, well-executed, lithographic engravings, delineated from nature by an artist of known talent and celebrity as a pathological draughtsman. The work is neatly and creditably got up, and possesses in addition the high recommendation of being sold at an unusually moderate price, considering the number of engravings with which it is illustrated.

Outlines of a course of Lectures on Medical Jurisprudence. By Thomas Stewart Traill, M.D., &c. Regius Professor of Medical Jurisprudence and Medical Police in the University of Edinburgh. Second Edition. Edinburgh, 1840. 12mo. pp. 222.

This volume has been carefully drawn up, and will be exceedingly useful to the professor's pupils. The last fifty-six pages are dedicated to Medical Police, and will be consulted by other readers, as it touches on subjects which are, for the most part, passed over by Beck. Such are, the effects of profession and trade on health; climate; sites for towns and habitations; drains and sewers; cemeteries; hospitals; schools; prisons, &c., &c. We wish that Dr. Traill would publish this portion of his book in an expanded form.

MEDICAL GAZETTE.

Friday, December 11, 1840.

> "Licet omnibus, licet etiam mihi, dignitatem *Artis Medicæ* tueri; potestas modo veniendi in publicum sit, dicendi periculum non recuso."
> Cicero.

MANAGEMENT OF LUNATICS.

The interests of the professsion, in both a scientific and a pecuniary point of view, are never more in danger than when they are interfered with by the public. There is much in medical practice that requires the understanding to be exercised free from the control of the more tender parts of our nature, and which none can safely undertake to manage whose heart has not been long accustomed to yield before the calm and reasonable dictates of the head. Hence, in great measure it is, that in all cases of eminent medical or surgical importance the public are utterly unable to act aright. Their feelings are so wrought on by the idea of the means that must in these cases be employed, that their understandings cannot be brought to acknowledge the propriety or even the necessity of adopting them. In judging of a surgical operation, for example, the kind-hearted among the people first, and as if it constituted the most important feature of the case, call to their minds all the horrors of the cutting pain, and exaggerate in their imaginations all the agony that knives, and saws, and hooks, can be supposed to inflict; and when their minds are well impressed with these terrors, they then first begin to reflect on the ultimate good which may result when the pain is done. No wonder that their understanding is but rarely able to master their feelings. It is notorious that in the majority of cases operations are more readily permitted by the patient himself, who is urged to them by the fear of death and the long continuance of his sufferings, than by his friends, who can only appreciate the terror of the main infliction; and it is probable that if operations were to be recommended and performed only with the agreement of the public, surgery would soon cease to be an occupation.

We are very far from holding that a perfect surgeon must be a man utterly devoid of feeling—there is no reason in the world why his feelings should not be most sensitive, but they must be under the subjection of his understanding; he must not regard them or call them, as the public do, the best parts of our nature, but must ever consider them subordinate to that which in his profession is far more worthy of attention—the understanding. That great faculty having decided what is desirable, then, and then only, can the feelings be admitted to have a voice in determining whether the end is worth the price of the means that must be paid to attain it.

What we have said of surgical operations may apply with equal force to the treatment of the insane, about which public feeling has of late been much excited, without, as far as we can see, any probability of great benefit accruing either to the profession or to the patients. Every one must readily acknowledge that there is no branch of medical practice in which tenderness of manner and a kind disposition are more essential than in this; but there is certainly none in which these should be more under control, nor one in which the honest practitioner should be more completely unfettered to pursue the course which his judgment dictates. There should be no further restraint upon his proceedings than that which is exercised by the friends of those who are committed to his charge, and certain authorized persons having frequent access to the asylum which he directs. It is not to be tolerated that the public should undertake by clamour, or any other means, to dictate the modes of treatment that should be adopted, or (to take at once the part of treatment which is now the subject of agitation), the mode of restraint that should in necessary cases be resorted to.

There is no question, even in medicine, on which they are less capable of forming a correct judgment; and high as are the talents of some among them, who are now chiefly taking interest in this matter, it is plain that even these have not their feelings in the necessary subordination to their understandings. They evidently hold the forcibly restraining madmen from injuring themselves and others in such abhorrence, that scarcely any consideration in their minds can justify its adoption; and they embrace a system in which it is professed that restraint is not employed, with an enthusiasm which shows that they will not suffer themselves to see the faults in any system but that which they condemn.

Now we do not mean that the characters of the persons by whom the systems are respectively maintained bear any relation of comparison to each other; but it does seem to us that the scheme at present promulgated, of the treatment of the insane without restraint, is of the same kind as that of the treatment of cancer without the knife; of cataract without operation; and some others. In each case the main feature of the new scheme is, at the best, the adoption of some means capable of attaining the same end by the same general plan, only in a manner less offensive to the public feeling. The remedies, other than the knife, for cancer, are violent escharotics, which in the majority of cases, with less safety, produce all or more than the pain of the cutting operation; hence the cases are comparatively few in which judicious surgeons employ them, though in these few none would think of neglecting them for the sake of what the public imagine all surgeons must have — a great love for cutting. In the same manner it is notorious that the person who in the present day most loudly professes his ability to cure cataract without operation—that is, without extraction or depression, is in the habit of stirring up soft cataracts with a needle, passed through the cornea at the time he is pretending to be merely examining the eye. And so in the treatment of the insane without restraint, so loudly applauded, not as in the preceding case by quacks, but by some honest men;—it is not that there is no restraint, but only that the wrist-straps and straight jackets, so terrible in the public mind, are thrown aside, and the patient is restrained (less securely, it must be confessed, to both parties) by the hands of stout and strong keepers, or placed in some circumstances different from, though not less disagreeable than those of the usual restraint, in which he can do himself no mischief.

Now we do not wish to imply that

the professional supporters of the so-called non-restraint system had any eye to public favour in their promulgation of it; we believe them to be too honest for such a purpose; but we do urge them to refuse to have their system degraded by popularity. If it be founded on scientific principles—if it be by experience proved to be better that a maniac should be restrained by hands than by straps and straight-jackets—then let the system be established and constantly practised on the basis of its truth and utility, and not on that of popular applause. A popular cry has been raised in its favour, and so long as this cry lasts the system can have no professional reputation: let the popular opinion be treated with all the respect that every thing founded on benevolence and sympathy with the afflicted deserves, but let it never be regarded as a prevailing motive to a particular line of medical practice, unless by some unusual coincidence it is unanimous with the results of professional experience.

In recommending this comparative neglect of popular opinion in a case in which the disputed modes of practice have an apparent rather than a real difference, we feel assured that we give that counsel which will soonest lead to the establishment of the best practice, and the greatest amount of public benefit. Let us recur to the case of operative surgery. The public have always believed that surgeons are devotedly fond of cutting, just as they believe now that mental physicians prefer strict restraint: none of them, indeed, have ever raised a clamour against surgeons, nor exercised any greater restraint upon the supposed propensities than that of refusing an operation individually, or for their friends, when they had not confidence enough in their surgeons to accept their recommendations; and what has been the result? Have operations, for want of occasional suppression by public clamour, become more and more frequent? Have the uncontrolled propensities of surgeons grown more and more sanguinary? Far from it: the best surgeons of the present day do not now perform one operation where their predecessors in the same situations performed ten. The progress of science has shown what diseases are amenable to cure without operation, and has discovered their remedies; and surgeons daily employ them, though the public believe them to be as attached to operations as ever, and think the only people who really abhor operating are those who sell nostrums more torturing than knives and saws.

And just so must it be in the case of the practitioners who take charge of the insane. Already the progress of science has banished the truly terrible imprisonments to which the lunatics of the last century were consigned; and if further improvement in this respect be attainable, it must in due time come to be established. There is no reason to believe that the mental physicians of the present time are more bigotted to the practice of by-gone days, or more regardless of human suffering, than surgeons are; they are, of course, quite open to conviction, by good evidence, of the superiority, if it really exist, of the new method of restraint called non-restraint; and as soon as its advantage to the patients is proved it will be readily adopted by them. Neither they, nor any other class of practitioners, are, nor is it desirable they should be, able to free themselves altogether from the influence of public opinion; for, *cæteris paribus*, those will always attain the greatest amount of practice who can best fulfil their own desire of curing *cito*, *tute*, *jucunde*. In the case of lunatics these modes of curing will be best fulfilled by the adoption of the most *speedily* curative method which is compatible with the bodily *safety* of the patient and his attendants, and a due regard to the *comfort* of the former. No doubt the last intention is greatly involved in the first; but its fulfilment must not be sought by the neglect of the second, and must be put out of sight in the few, and we believe constantly decreasing number of, cases in which it is incompatible with the first. Where the public see these results best obtained, they will bestow their patronage; they err much less in their judgment of results than in their choice of means; and the advocates of the new system need not fear, if it really possess all the advantages which they claim for it, that it will bring them an abundant harvest of reputation and of fees. But let them beware of raising a popular clamour in their favour; it is not likely to secure them either a desirable reputation or a permanent reward; they can never more thoroughly acquire the confidence of the friends of their patients than many of those possess who still practise in the abused style, convinced of its necessity and utility, but combining it with all gentleness of manner and deportment. In a future number we shall take occasion to remark on another part of this question, in which the public opinion has undoubtedly a greater claim to attention, inasmuch as the subject of it is one of which the intelligent portion of the public can form a tolerably accurate judgment—we mean the measures preliminary to the consignment of a supposed lunatic to an asylum.

REMARKS
ON CERTAIN
MUSCLES OF THE FACE, AND A NEW MUSCLE OF THE EAR.

By PROFESSOR HYRTL, of Prague.

NUMEROUS as are the observations of Albinus, Walther, Rosenmüller, Gantzer, Kolch, Sels, &c. on the deviations of arrangement in the muscular system, and carefully as Meckel and Soemmering have collected the more important among them in their anatomical manuals, yet certain cases occur to every practical dissector which are not contained in the works on this subject, and which therefore deserve to be made generally known. Such irregular arrangements of muscles have, in addition to the interest of novelty, a higher physiological importance, and inasmuch as they are for the most part repetitions of normal arrangements in animals, they afford the means of illustrating more clearly the relation of the organization of animals to the higher organization of man. In no part of the human body do the muscles vary so much as in the face; and the study of them is the most difficult, and consequently the most incomplete, part of the whole of myology. No dissection requires more attention, patience, and dexterity, than the demonstration of the organs of motion in the face, of their exact relations to one another, and of their manifold connexions. More especially those fibres have hitherto been for the most part overlooked which go to the skin, and which, by their contractions, form the pits and the folds which regularly characterise a certain expression of the countenance.

Physiognomy might be based on more scientific foundations if anatomy were capable of pointing out what groups of muscles, and what subdivisions of them, are in action, and in what degree each acts, in embodying in the countenance any passing state of the mind, or any permament mental constitution.

The anatomist must set himself the question, what muscles are in action in a given expression of the countenance? he should at least endeavour to explain what moving powers produce the expressions of the different states of the mind, or of the acute paroxysms of mental emotions. On these points science is still far behind-hand; for as the question now stands, all that we know is limited to the simple acts of the raising or drawing down of certain parts of the face. If in any case accuracy and a circumstantiality bordering on minuteness be necessary, it certainly is in that intricate field, in that confusion of fibres and fasciculi of muscle, which traverse the skin of the face.

The industry of Santorini, and his accuracy in the detection of the smaller fasciculi of the muscles of the face, are unequalled by any modern anatomist: on the contrary, pains have been taken to cut down his works to give them a convenient form for anatomical text-boks. I have myself given much attention to the subject; I have confirmed many of the demonstrations of the excellent anatomists of former times, and have observed many things that are new. I may be allowed, therefore, to put together the observations that I have made in the following remarks.

1. The frontalis muscle arises neither from the root of the nose, or the glabella, nor, as Meckel* asserts, from the nasal process of the superior maxillary bone; but it developes its muscular fibres from an aponeurosis which covers the dorsum of the nose, and which must be regarded as the result of the interweaving of the tendons of the compressor of the nose. Hence one cannot wrinkle the forehead without at the same time moving the skin of the bridge of the nose. The layer of cellular tissue which covers the frontal muscle, and is very firmly attached to it, is, in parts, intimately connected with the subcutaneous cellular tissue (probably fascia superficialis) by means of short tough fibres, so that when the muscle contracts, and the skin covering it is thrown into wrinkles at right angles to the direction of the muscle, the depressions of the wrinkled skin correspond to the situations at which those connections exist.

The fibres of the muscle which arise from the upper border of the orbit coalesce with the corrugator supercilii, pass through the orbicularis palpebrarum,† and then turn considerably outwards on the forehead, and not unfrequently reach to the superior auris. A very constant bundle of fibres passes downwards on the dorsum of the nose, arches towards the sides, passes to the pyramidalis nasi, and then again leaves it, and loses itself in the labial portion of the levator labii superioris, alæque nasi. Santorini has described this fasciculus as the M. procerus.

The breadth of the frontalis muscle on each side is commonly equal to half the diameter of the orbicularis palpebrarum. In women it is generally smaller; it is broadest in heads that have a frontal suture. I have never observed a continuity of the fasciculi of the frontalis with those of the occipitalis, such as Sandifort and Ludwig say that they have seen.

2. The orbicularis palpebrarum arises not only from the ligamentum palpebræ internum and the nasal process of the superior maxillary bone, but also from the inner part of the lower border of the orbit, by tolerably numerous parallel fibres, which have hitherto been described only by Heister,‡ who made a musculus depressor palpebræ inferioris of them. A fasciculus also, sometimes, but not constantly, arises from the malar bone, from which also there is always sent off a small bundle of fibres, which attach themselves to the outer edge of the levator labii superioris, and remain united to it, or pass to that part of the skin in which, during laughing, the furrow forms which leads down from the side of the nose to the angle of the mouth. The fasciculus going to the zygomaticus major or minor is not always present.

It is incorrect to call the layer of muscle which extends over the tarsal cartilages a circular muscle. Accurate examination shows that the fibres of the lower and those of the upper eyelid are never continued into one another. Each lid has its own independent and separately acting fibres. This is proved not only by dissection, but by an experiment which shows that the motion of the lower eyelid is quite distinct from that of the upper. If we measure off on the border of each of the two lids an equal distance from the internal angle of one, for example the left, eye, and mark them with black dots, and then shut the eye, we can see, by looking in a glass with the right eye, that the black point on the lower lid does not correspond with that on the upper, but is carried almost a line nearer to the internal angle of the eye; which could certainly not occur if the upper and lower lids had one circular constrictor muscle.

3. The muscles of the nose can be profitably examined only in very muscular individuals. The levator labii superioris alæque nasi, which Santorini named pyramidalis, and which Winslow first described as a distinct muscle, is always connected at its origin with the constrictor of the eyelids, and sometimes with the frontalis also. We are consequently unable to close the eyelids forcibly without at the same time drawing up the alæ nasi, and wrinkling the skin on the dorsum of the nose. But before the muscle gets to the lips it sends a separate fasciculus to the skin, which is increased by a similar fasciculus from the levator labii superioris. These fasciculi together appear to perform the principal part in the formation of the wrinkles in laughing.

4. The muscle of the apex of the nose, which is figured by Santorini, is found only in very broad noses, on which I have frequently seen a small extra cartilage, lying between the triangular and alar cartilages, of an irregularly quadrilateral form, and firmly connected with the ligament which unites those two cartilages.

5. There is no depressor alæ nasi, though it is figured in all anatomical works. What Soemmering, Meckel, Hildebrandt, Krause, and others, describe as the depressor alæ nasi, is that which Santorini called the dilatator proprius pinnarun, which is in part covered by the compressor nasi (the transversalis nasi of Santorini). If the sides of the nose be lightly touched with the fingers,

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* Handbuch der Menschl. Anat. Bd. 2. p. 480.

† This arrangement is normal and constant. Even in very weakly-muscled individuals one finds one part of the orbicularis below the other which is placed on the frontalis; the latter muscle slides as it were between the two portions of the former.

‡ Compend. Anat., p. 174.

and a strong inspiration be then made through the nostrils, as in taking snuff, the action of this muscle in dilating the nostrils is very distinctly felt. If I pass the tip of the little finger into one nostril, and make a similar inspiration, I feel that the short canal into which the apertures of the nostril lead acquires a more vertical direction towards the ethmoid bone, while in quiet respiration it looks more horizontally backwards towards the fauces. This is probably what Bell would call a respiratory motion of the nose; it occurs in snuff-taking, because, in snuffing up, the apertures of the nostrils are intentionally opened and shut, so that in inspiration through the nose the air passes forcibly into the nostrils, and in consequence of the more vertical position of the nasal passages carries the narcotic powder towards the upper regions of the cavities, where the terminations of the olfactory nerves ramify. In gentle inspiration, on the other hand, the more horizontally-directed passages into the nose carry the snuff towards the fauces and the larynx, as every one who breathes over finely-powdered snuff will learn by the coughing that it excites. It is only thus that we can explain why snuff and other sternutatory powders do not get into the lungs, into which they might else just as well pass as the dust of roads, which we inspire through the nostrils. In excited or difficult respiration, in severe inflammations of the lungs, and in the death-rattle, the respiratory office of this dilator of the nose is most clearly exhibited. If the nervous trunk that supplies this muscle be paralysed, the nose ceases to exercise its respiratory function. While in healthy men in deep inspiration through the nose, the nostrils are dilated by the action of this muscle, in those who are apoplectic, or whose faces are paralysed, the nostril is compressed in inspiration because the ala nasi yields to the pressure of the air like a valve, which is again raised up in expiration.

6. In the skin of the cheeks I have several times, and especially in lean subjects, seen a muscular fasciculus which both originated and terminated in the skin; arising in the region of the malar bone, and ending above, or on the outer side of, the angle of the mouth. It never exceeded a line in breadth; and its length varied from an inch to an inch and a quarter. It constantly presented itself in the same manner, and therefore could not be regarded as a mere accident. Its absence in men with fat cheeks might perhaps be explained by its becoming atrophied in consequence of the compression which it suffers from the accumulating adipose substance.

7. More rarely a similar fasciculus passes from the anterior edge of the tendon of the masseter to the skin of the cheek.

8. I once saw an accessory fasciculus of muscular fibres passing from the fibrous investment of the parotid gland to the zygomaticus major. The zygomaticus often gives delicate fibres to the skin, of which one, which separates from its lower edge, appears especially developed. If this accessory to the zygomaticus be pulled with the forceps, a pit is formed in the cheek at the point of its insertion in the skin.

9. The depressor anguli oris has a similar fasciculus at its outer edge, which is often attached to the malar bone, and runs upwards upon it.

10. On no muscle is there so little agreement among anatomists as on the risorius Santorini. Meckel and Krause see nothing more in it than a prolongation of the platysma myoides. But this it is not, and it cannot be, because the direction of the platysma crosses that of the fibres of the risorius. According to my observations it always arises from the fascia parotideo-masseterica, and never loses itself in the skin at the angle of the mouth to produce there the dimples of laughing, but is regularly connected with the insertion of the depressor anguli oris. Its discoverer himself regarded it as different from the platysma myoides, and said, "Alius omnino a quadrato,* indeque non derivatur, quod huic ille subjicitur." It is rarely absent, and sometimes acquires a breadth of two lines. It is sometimes double, and Santorini saw it even triple.

11. The platysma myoides sometimes sends a separate fasciculus over the fascia parotidea to the zygoma, where it unites with the masseter, in the same manner as a similar fasciculus from it, which passes behind the ear to the occipitalis, is attached to the outer edge of that muscle.

12. The musculus anomalus maxillæ superioris, that paradox of a muscle, has only an historical value. It proves clearly enough how easily an error in anatomy propagates itself by tradition, and how little pains have been taken to rid the science of such absurdities.

13. From the angle of the lower jaw of a man 40 years old, there arose a thin muscle two lines wide, which passed over the outer surface of the parotid to the meatus auditorius externus, to be attached to the anterior and lower border of the ridge of the meatus (musculus maxillo-auricularis).

That this muscle has the power of enlarging the entrance of the meatus auditorius is evident from its anatomical relations. Perhaps it occurs only in men who have an acute sense of hearing. One might explain the dilatation of the external meatus when the mouth is opened (which is felt when a finger is put into the ear, and masticatory motions are performed by the lower jaw) as well by the action of this muscle as by the relation of the condyle of the lower jaw to the cartilage of the meatus.

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* The πλατυσμα μυῶδες of Galen was named quadratus genæ, and tetragonus colli by Douglas and Camper.

14. In about every sixth corpse there may be found a muscle passing from the styloid process to the lower part of the circumference of the cartilage of the external meatus. It arises on the styloid process, above the origin of the stylo-glossus, with which it is connected by fleshy or tendinous fibres. It passes upwards on the outer surface of the process, gradually diminishes, and is inserted in the lowest prominence of the meatus auditorius cartilagineus by a radiating tendon. In consequence of this anatomical arrangement, this muscle acts as a depressor of the external ear, and a dilator of the meatus, and might fairly be named musculus stylo-auricularis. It is enclosed in a peculiar sheath which affixes it to the styloid process; it receives a nervous filament from the nervous occipitalis minor, and an artery from the stylo-mastoid or occipital. It is usually spindle-shaped, varies in width from half a line to a line and a half, and is sometimes two-bellied, in which case its lower portion is a fasciculus derived and passing upwards from the stylo-glossus.

I first saw this muscle when I was prosector at Vienna, in the body of a robust man, and I noted it as an interesting extra-development of muscle. In following years, and in this last, I have often found it again, and I believe I am justified in saying that it is more than a mere anomaly. In strongly muscular subjects, with short necks and tough aural cartilages, it is very rarely absent. Its influence on the dilatation of the cartilaginous meatus which leads to the membranâ tympani renders it physiologically interesting. In the cases in which it is absent, there is at always tendinous band going from the origin of the stylo-glossus to the same part of the auditory passage; and this I regard as the empty sheath of the deficient muscle—a shell without its kernel.—*Medic. Jahrb. des k. k. österreich. Staates.* Bd. xxx. St. 3.

ABERDEEN INFIRMARY REPORTS.

[Continued from page 382.]

Cases and Observations by —— Laing, Esq. One of the Surgeons of the Hospital.

CYSTIC OR HYDATOID DISEASE OF THE TESTIS.

A. M., æt. 29, admitted April 11th, 1838, with a large swelling of the left side of the scrotum. The tumor is pyriform, somewhat elastic, and has an indistinct fluctuation, but by no means the feel of hydrocele. The cord seems to be sound. He says the swelling began several years ago, without any known cause, commencing towards the lower part of the scrotum. The opposite testis is considerably enlarged and hard. On examination a cicatrix was observed at the lower part of the scrotum, which he says was the result of an abscess which occurred there about two years ago, and burst spontaneously, but soon healed. It burst again last winter, and discharged for several weeks. His complexion is florid; but his constitution is feeble, and seemingly scrofulous. A calomel pill was ordered, followed by Epsom salts, and a cooling lotion, to relieve the superficial inflammation, which seemed to have been excited by the journey.

April 19th.—An operation having been determined on, an incision was cautiously made through the integuments of the scrotum and tunica vaginalis, when a bluish semitransparent membrane presented itself. Into this a small trocar was cautiously pushed, but only about half an ounce of transparent serum escaped. On withdrawing the instrument another similar membrane appeared, which was drawn outwards with dissecting forceps, and punctured, and found to contain only two or three drams of serum. In this manner many similar cysts were successively drawn forward and opened, to the number of upwards of thirty, as the quantity of serum amounted to sixteen ounces. The wound was then closed with adhesive plaster.

Two days after the operation he was seized with febrile symptoms, which were treated by saline and antimonial medicines; and this was followed by erysipelas of the face: the pulse rose to 125, and he had much confusion and delirium. The head was shaved, cold lotions applied, and a band one inch broad made between the face and the scalp by nitrate of silver. These means, with purgatives, saline and antimonial medicines, subdued the fever and the erysipelas of the face; but the wound in the scrotum was still considerably inflamed.

Adhibeantur Cataplasmata.

30th.—He is now convalescent; pulse 84; tongue clean; the wound of the scrotum discharging healthy pus.

May 12th.—The opening in the scrotum contracting, and the discharge much diminished. The testis of the left side is now little above the natural size, though the scrotum is still thickened and enlarged. The right testis is still hard and somewhat painful to the touch.

23d.—Dismissed.

This patient returned to the hospital in

July, 1839, on account of a different disease. The testis formerly operated on was found quite sound, being scarcely larger, but somewhat softer than natural, without any pain. This was evidently a case of the disease called by Mr. Guthrie, and others, cystic or hydatoid disease of the testis, but differed from most of the cases recorded in the size of the cysts, which are usually described as being from the size of peas to that of grapes.

CASE OF DISEASED TESTIS.

E. A., ætat. 35, wright, was admitted on the 9th January, 1840, with a large tense elastic swelling of the left side of the scrotum, neither affected by coughing nor change of position, but extending up the cord as far as the abdominal aperture. It gave him little uneasiness, unless what arose from its bulk. On the whole the symptoms closely resembled those of hydrocele, but the tumor was not transparent, and the fluctuation was less distinct. It commenced about twelve months ago, without any known cause, and extended gradually upwards. On the 13th an incision was cautiously made through the integuments and the tunica vaginalis, when a hydatid of considerable size presented itself. This was punctured, and was immediately followed by another, which was also punctured, exactly as described in the preceding case; and thus ten or twelve ounces of serum were evacuated. As soon as the first cyst appeared, I sent for two of my colleagues, and they were witnesses to the successive puncturing of the cysts. When the scrotum was reduced nearly to the natural size, the edges of the wound were brought together with adhesive plasters.

14th.—The wound continued for some time to ooze out a watery fluid. To-day the scrotum is slightly swollen and inflamed.

Adhibeantur Cataplasmata. Low diet.

15th.—Was seized with severe pain of the testicles soon after yesterday's visit. The scrotum is now much enlarged, red, tense, and extremely tender; pulse frequent; tongue furred, and white; bowels opened by medicine this morning.

℞ Antimon. Tartar. gr. iv.; Aquæ Cass. ℥viij.; Solve Capiat. unciam, tertiis horis. Continuentur Cataplasmata et Fotus.

18th.—Swelling still great, but pain diminished. The integuments have assumed a gangrenous appearance in several places. Four or five incisions were made into the scrotum, which discharged blood and serum.

Continuentur Omnia.

20th.—No sloughing has taken place on the left side of the scrotum, the matter having found vent by the incisions; but a large slough, four or five inches in length, by two in breadth, has formed on the right side.

Omittatur Mistura. Continuentur Cætera. ℞ Opii gr. i., formâ Pilulæ, omni nocte.

23d.—The slough, which comprehends almost the whole fore part of the scrotum, is now detached, and the right testis threatens to protrude. It is retained by adhesive straps. The febrile symptoms have nearly subsided.

He was ordered porter and Sulphuric Acid mixture. Continuentur Pilulæ Opii bis die, et Oleum Ricini pro re nata.

February 10th.—Health improved, and strength returning rapidly. The ulcer is granulating and cicatrizing steadily. The testis of the affected side is reduced nearly to its natural size. Pergat.

18th.—Going on extremely well. The ulcer is diminished to the size of a crown-piece.

Omittantur Pilulæ Opii.

March 10th.—The wound has continued to contract gradually, and is now healed. The cicatrix is extremely small, compared with the great size of the ulcer. Dismissed cured.

Although the treatment adopted in these two cases proved successful, yet the symptoms were so severe, and the cure so tedious, that I doubt whether extirpation of the testis would not be preferable.

CASE OF SECONDARY HÆMORRHAGE CURED BY LIGATURE OF THE FEMORAL ARTERY.

J. C., æt. 24, a pilot, was admitted on the 22d of April, 1838, with both legs severely fractured. The accident was occasioned by his legs being entangled in a rope attached to a ship in motion. The left leg had suffered a compound and comminuted fracture, the tibia protruding through the wound. The bones of the right leg were comminuted, but did not protrude. There was, however, an external wound, and much contusion of the soft parts. There was also considerable hæmorrhage from the wound of the left leg, which was, however, soon checked by cloths soaked in cold water. It being determined to attempt saving both legs, they were set as accurately as possible, and splints and bandages applied. An anodyne draught was ordered at night, and the usual treatment in all other respects.

On the 25th the wound of the right leg had assumed a gangrenous appearance, which rendered it necessary to remove the splints from it, and apply poultices, fomentations, &c. The wound of the left leg was looking well. It was dressed, and the splints re-applied.

On the 5th of May a large portion of the tibia was extracted from the wound of the right leg, which soon after began to assume a more favourable appearance; but, about the 10th, the left leg and knee were attacked with phlegmonous erysipelas, and diffuse abscesses formed near each molleolus. These were opened by the lancet, and discharged profusely. His strength was now supported by nourishing food, wine, porter, &c., and the wound of the right leg began to granulate favourably; but the abscesses in the left leg discharged copiously, and the heel began to slough from pressure. He was also affected with irregular fever, and occasional diarrhœa, for which astringents, opiates, and quinine, were employed. In the month of July the ulcers in the right leg were nearly cicatrized, and the bones had begun to reunite: but the bones of the left leg remained loose and bare, the sloughing of the heel continued, the os calcis became carious, and his strength was so much reduced by the discharge, that it became necessary, in the beginning of August, to propose amputation of that limb, in order to save his life. The operation was accordingly performed on the 14th, at the usual distance below the knee, a flap being formed from the calf by transfixion. On the 20th the stump looked well, union by the first intention having taken place to a considerable extent. On the night of the 24th copious hæmorrhage occurred, in consequence of his having started up in bed from some sudden alarm. It was arrested by cold and pressure. On the 25th it recurred with greater violence. On taking off the dressings the lips of the wound were found to be forced asunder by coagulated blood. On clearing it away, the state of the stump was found to be such that it was impossible to seize and tie the bleeding vessels. A piece of sponge was, therefore, placed over them, and pressure applied by means of compresses and bandages.

27th.—Hæmorrhage has returned with violence four or five times since yesterday. Each attack of bleeding is preceded by severe pain in the stump. His strength is now alarmingly reduced, the lips and caruncula lacrymalis being pale, the pulse 160, feeble, and undulating. Amputation above the knee being considered inadmissible from his great debility, I proceeded immediately, with the assistance of my colleague Dr. Dyce, to tie the femoral artery, as the only remaining alternative. The incision was made in the usual place, the inner edge of the sartorius muscle raised, the sheath of the vessels opened, and a single ligature passed round the artery. Fortunately not a teaspoonful of blood was lost during the operation, as the patient had very little to spare. The coagulated blood was now removed from the face of the stump, but no hæmorrhage followed. The flap was, therefore, reapplied, and the wound dressed. From eight to twelve hours after the operation the temperature of the limb was six or seven degrees lower than that of the opposite side, notwithstanding the application of warm bottles, flannel, &c. Next morning it was only two degrees lower, and in the course of the following day became quite natural.

On the 2d September, the pulse had fallen to 112, and was firmer, and his colour had begun to return. The wound in the fore-part of the thigh had adhered by the first intention, except where the ligature passed out. The stump also was granulating freely, and had begun to cicatrize. Wine, quinine, and nourishing food, were continued. From this time he continued to improve steadily.

On the 18th the ligature came away from the artery, and soon after the wound closed. The stump also was nearly skinned over, and his strength much restored.

On the 14th of October the stump was entirely healed, and the right leg firm, and but slightly deformed. He was soon after dismissed, quite well.

CASE OF TETANUS.

To the Editor of the Medical Gazette.

Sir,

Thinking that the accompanying case will be an acceptable contribution to the profession, on the treatment of an obscure disease, I shall feel obliged by your giving it insertion in an early number of your valuable journal.—I remain, sir,

Your obedient servant,
Thos. Lewis, M.B. M.R.C.S.L.

2, Rodney-street, Liverpool,
Dec. 3, 1840.

Tetanus following the reduction of an old partial dislocation of the ankle by a bone-setter. Useful effects of the Extract of Indian Hemp—Pleuritis—Pneumonia—Death—Autopsy.

Mr. J——, a patient of Mr. Bickersteth's, æt. 29, of middle conformation, sanguineo-melancholic temperament, enjoying good health. Nine months ago, while exercising in a gymnasium, he dislocated the right ankle, and fractured the fibula near its lower extremity. The dislocation was not completely reduced, but left some deformity; the foot was turned too much outwards. He has been lame ever since, and obliged to use one or two walking-sticks.

On the 21st of last month (Oct.), a quack bone-setter undertook to rectify the deformity. A relative of the patient states that he used a good deal of force for about seven minutes, and the patient states he felt the reduction. For three days previously to this, the foot and ankle were immersed in a poultice of grains. After the reduction a plaster was applied round the ankle, which blistered the surface. The patient states that he has been able to walk better since the reduction; but his relative states that she has observed a marked alteration in him—he has been lower in spirits than usual.

On the 10th Nov., he went in the morning to his office as usual, and early in the afternoon returned home. He was now seen for the first time: he said that he felt last evening an oppression and constriction of the chest, with inability to open his mouth, but had slept well last night: he also felt stiffness about the eyelids. These symptoms have so much increased as to oblige him to return from his duties. The eyelids do not appear too much closed, though he says he cannot open them as usual. The mouth cannot be opened any more than to allow the end of the little finger being introduced: masseter muscles not rigid: there is no pain; pulse quiet; skin cool: there is no pain in the ankle; the cuticle is desquamating in large scales upon it; breathing slow.

> Ordered to take—a warm bath; Calomel and Dover's powders at bed-time; and a saline draught every four hours.

Nov. 11th.—Took a vapour bath, and not the warm bath as ordered; slept tolerably well last night. 2½ P.M.—There is no improvement of the symptoms. 9½ P.M.—He had been lying on a sofa all day, and in going up stairs to bed he became pale and faint, with a great increase of the oppression of the chest: he now feels more easy.

> A Liniment of Soap, Camphor, and Tinct. Opii, ordered to be rubbed into the buccal region. Calomel and Dover's powder to be repeated to-night.

12th, 4½ A.M.—Has had some sleep, but the sense of constriction of the chest is much increased, so that he cannot lie long upon his back; he prefers lying on his side: the jaws are more closed. There has been no stiffness about the neck, nor inconvenience in swallowing. There is a rash out over the whole body; face flushed; pulse 102, not full; no rigidity of the muscles; no pain in the head: he said he had pain in the forehead the night before. Mr. Bickersteth recommended counter-irritation to the spine; and to take Morph. Mur. gr. ss., Calomel, gr. iij., every three hours: bowels costive since yesterday. Ordered a senna draught. Potassæ fusa was well applied on each side of the cervical spinous processes. 12¾ A.M.—No improvement; pulse 100. The rash has now almost entirely subsided. 11½ P.M.—Mr. Bickersteth saw him this afternoon, and ordered the senna draught to be repeated: since then he has vomited several times, and has thrown up the draught. The thoracic oppression is still increased, which makes him very restless; he requests to be moved from one position to another every two or three minutes. Complains of feeling very weak; he cannot turn himself in bed; pulse 120. The mouth is somewhat more relaxed. The upper extremities have been a few times spasmodically moved just at the time of falling asleep: complains of a feeling of fatigue in the back of the neck, which leads him to change his position every few minutes.

> Ordered—an injection of Castor Oil and Turpentine, aa. ℥j. in ℥vj. gruel.
>
> ℞ Ferri Sesquioxidi, ℥iv.; Thereacæ, ℥viij.; Coch, j. ampl. 2nda. vel. 3tia. q. q. Hora Sumend.; Pergat in usu pil. Morph. et Calom.
>
> ℞ Ungt. Hydr. Fort. Spino dorsi. infricand. ter die.

13th.—The oppression of the chest is worse; an attempt to swallow is followed by very strong contraction of the jaws; after a short time the spasm relaxes, and the mouth can be opened so as to admit the end of the little finger. A piece of wood was placed between the molar teeth while some of the electuary of iron was given, but the attempt to swallow produced such contraction of the jaws as to give pain, and the wood was removed with some difficulty. The temporal and masseter muscles are now felt hard and rigid; there is stiffness of the lower extremities, but he can move them: has stiffness in the back of the neck. Pulse 110. Says he feels much weaker: cannot turn himself in bed. The electuary has not been given regularly: he could not be made to swallow it. The bowels have moved twice since the injection. The breath has rather a fœtid odour.

14th, 2½ A.M.—Yesterday evening he complained of great pain across the right side of the chest, for which Mr. Bickersteth ordered a mustard poultice: he was relieved by it for a short time, but the pain is now very severe in the right mammary region. He could not inspire without sharp, cutting pain, and appeared to be relieved by pressure upon the part: he makes attempts to suppress respiration. A distinct friction sound is heard just under the right mammilla; pulse strong and full, 120; face much flushed. The trismus about the same: says there is less stiffness about the neck.

> Ordered—ten leeches to the mammary region, to be followed by a mustard poultice. The Calomel and Morph. had not been given yesterday. A pill was to be given after the application of the leeches.

6 P.M.—Had considerable relief after the

leeches; but the pain came on again, and at 6 A.M. eight more leeches were applied, with relief. At present there is much less pain in breathing; there is great stiffness of the muscles of the back, and of the left thigh; he cannot bend the trunk, nor flex the thigh on the pelvis. The other symptoms are the same: pulse softer, and not so full as in the morning. He was now seen for the first time by Dr. O'Donnell, who proposed pursuing the purgative plan of treatment.

> ℞ Calomel, Pulv. Scammonii, aa. gr. v. 2nda. q. q. hora s. After purgation—to take Acidi Hydrocyanici dil. ♏v. every two hours, until some effect is produced.

15th, 9 P.M.—Six of the powders have been given, and three more of double their strength, but without any effect. Dr. O'Donnell remained with him this afternoon, and administered about four doses of Hydrocyanic Acid. Dil., of ten minims each, at short intervals, without effect. Friction to the trunk and extremities was ordered. It was thought that the acid might have been weak, and the following mixture was obtained from the Apothecaries' Hall (out of a fresh bottle).

> ℞ Acid Hydrocyan. Dil. ʒij.; Aquæ Cinnamomi, ℥ij.; M. ft. Mist.

Dr. O'Donnell and myself staid to administer this. I will just describe his state at this time: pulse about 150, soft and moderately full; great prostration; decubitus on the back; jaws closed, but by a little force may be separated a quarter of an inch; does not complain of pain except when the spasmodic paroxysms come on, which is every two or three minutes, affecting the muscles of the trunk and lower extremities: an attempt to move his thigh will bring on a spasm. The left lower extremity is more affected than the right. During the paroxysm the features are distorted and the chest thrown forwards, but there is not well-marked opisthotonos. The stomach would appear to be contracted at the time with the voluntary muscles, for, simultaneously with the general paroxysm, he throws up a dark mucous fluid, which he spits out: there is a good deal of saliva mixed with it. A little of the tongue can be seen, and appears dark in the centre. He speaks very little; it is a labour for him to do so. The bowels have not moved; no urine passed for seventeen hours; abdomen soft. Four doses, ʒj. each, of the above mixture, were given in the space of twenty minutes, which, after being retained two or three minutes, were ejected during the general paroxysm. The only effect noticed was a fluttering of the respiration. After an interval of twenty minutes three teaspoonsful of the same mixture were given at once, but without any effect, and was soon ejected.

Mr. Bickersteth having proposed the use of the extract of hemp, it was kindly furnished by Dr. Jackson, of Mount Pleasant. A solution was made of twelve grains in five drams of alcohol and water. At 10½ P.M., a teaspoonful of the solution was given, and retained. At 11½ P.M., he passed about half a pint of dark-coloured ammoniacal urine. The paroxysms were now very much abated. The same dose was ordered to be repeated at 12 P.M., and then every two hours until sleep was induced. The Calomel and Morphia were omitted since yesterday morning, and the electuary of iron this morning.

16th, 8½ A.M.—At an early hour the friends of the patient sent to say that the jaws were opened, and that he had had some sleep. It was ascertained that the second dose of the solution was ejected, and another given was retained. Shortly afterwards he fell asleep, which continued for about three hours and a half. There were frequent convulsive motions of the head and trunk during this sleep: about an hour and a half after awaking he was able to open his mouth, and converse rather freely: the paroxysms were then very much abated. A fourth dose of the solution was given about 6 A.M. The jaws are still free; no rigidity; occasional spasm of the trunk, but very transient: there appeared to be a smile upon his countenance, and an expression of being happy. He spoke rather freely, but was delirious; pulse 160, very weak; bowels not moved.

> Ordered—Injection to be repeated, and to take some beef tea.

12½ A.M.—Seen by Mr. Bickersteth and Dr. O'Donnell: since last report has had nearly two hours' sleep; countenance much altered for the worse; pulse varying from 140 to 160, very weak and small; hands were cool and moist, and of a bluish colour; bowels have just now freely moved; evacuation liquid, of black colour.

> Ordered—℥ij. wine every hour, and beef-tea.

He was now observed for half an hour, and had no spasm, but was inclined to sleep. The remaining dose of the solution of the extract of hemp not to be given while the effects of the former dose remained. 3 P.M.—Had two convulsions since last report, and has been in a comatose state, but may be roused; took two ounces of wine, and some beef-tea; pulse now hardly perceptible. From this time he gradually sunk, and died without a struggle at 3½ P.M.

Autopsy, twenty-one hours after Death.

Exterior.—Considerable rigidity of the extremities. Extensive livid discolouration of the integuments of the back, especially of the lumbar region. Percussion rather dull in the right axilla.

Spinal cord.—Nothing more than moderate congestion of the vessels of the pia mater was observed, and this was more marked on the posterior than the anterior surface.

Brain.—The dura mater adhered very firmly to the inner surface of the skull. Some congestion of the pia mater on the posterior part of the brain. A thin layer of bloody serum under the arachnoid made the membrane appear very red in some parts, especially on the left posterior lobe. The same was observed on the anterior lobes, but to a less extent. The cortical substance was of a deep colour, and contrasted well with the medullary; the latter was considerably congested. After section the red points were very numerous, the blood which oozed out being of a very deep colour: no softening observed: no fluid in one of the lateral ventricles, and only about half a dram in the other: the cerebellum was not so congested as the cerebrum.

Chest.—Both lungs had collapsed. A small quantity of bloody serum in the right pleura. *Right lung.*—On the anterior and lower part of the upper lobe there was a thin layer of lymph; on its lower margin it was about the thickness of a shilling. There were two or three small masses of hepatization just beneath the lymph. The lower lobe, and the depending part of the upper, felt heavy; broke rather readily on pressure, emitting a spumous bloody fluid, not hepatized, but much congested. The large bronchi contained a frothy mucus tinged with blood. Smaller ones not examined. The *left lung* was in a similar state of congestion as the right.

Heart.—Judging by the eye, it appeared somewhat smaller than natural; very flaccid; all the cavities quite empty, except the right ventricle, which contained a gelatinous looking coagulum, about the size of a filbert: there was little or no blood within it. All the valves were thin, translucent, and healthy.

Abdomen.—Numerous old adhesions of the liver to the diaphragm and abdominal wall. Three or four biliary calculi, size of hempseed, in the gall-bladder, which was distended with bile. *Spleen.*—Small and firm. *Stomach.*—Moderately distended with gas; contained only two or three drams of a thick dark-green fluid, having a very acid odour. The mucous membrane along the lesser curvature presented a patch of ecchymosed spots: the remainder pale and normal. A few large injected veins ran across the anterior and posterior surface of the organ. I did not smell any hydrocyanic acid in the stomach. *Intestines* rather inflated; contained some black liquid fæces, which in the descending colon had the odour of turpentine. Other parts not examined.

Remarks.—The object intended in publishing this case has been to direct attention to a remedy which in India and in this country (as proved in the foregoing case) has been found to possess power in controlling spasmodic action of the muscular system; and though the case did not terminate favourably, yet such facts have been elicited as to entitle the extract of Indian hemp to an early administration in future cases.

It is to be hoped that some channel for its introduction into this country will be soon opened, so that the remedy may be accessible to the profession generally. At present, I believe, it has only been introduced through private hands.

THE EXTENSION OF VACCINATION ACT.

To the Editor of the Medical Gazette.

Sir,

You doubtless, Mr. Editor, remember the occasion on which Æsop represents one of his characters as exclaiming, "Oh! my sons, behold the power of unity." The medical men about Brentford have nobly illustrated the truth of the sage's remark: we, too, the medical officers of the Edmonton Union, have followed in their wake; see the result—here is the brief detail:—

On the 29th of October, the Board directed their medical officers to be written to, to ascertain whether they were willing to vaccinate in their several districts, according to the new Act, at 18d. per case. A meeting of six, of the medical staff of seven, took place; we answered the Board by declining to enter on the provisions of the recent Act at less than half-a-crown per case.

It was late before our joint tender was sent in; scarcely more than one-tenth of the guardians was present: we had not expected any decision till the next Board-day, yet this fraction considering, that as medical men had generally vaccinated gratuitously, and as we had "vaccination included under our present contract," resolved that 18d. was a sufficient remuneration, and again offered the said sum.

The only surgeon who did not attend the meeting of his *confrères* accepted the 18d. The six non-contents, however, met again; urged the attendance of a full Board; renewed their application for the half-crown. At the next Board-day they were warmly seconded by the more liberal guardians, and had the gratification of carrying the half-crown by a majority of 15 to 9.

A guardian proposed that the seceder be promoted to the level of his half-crown brethren, which was resolved accordingly by the Board. It is but justice, however, to this gentleman to remark, that he has coalesced to-day with us from whom he so injudiciously separated, owing, it appears, to some erroneous notion he entertained that paupers only would be vaccinated under the new Act. He has, with much good feeling, withdrawn his original tender of 18d., and now, with us, refuses to accept the same, even should the Commissioners decline to confirm the half-crown appointment. We wait their decision; but we have thought it well to put on record and circulate, as soon as may be, the above detail, that other surgeons, situated as we were, may be like-minded; and feel, when impelled by a sense of what is due to themselves and their profession, that they are not travelling altogether a "terra incognita," or destitute of the "chart and compass" of other men's experience.

I am, sir, on behalf of my colleagues, the medical officers of the Edmonton Union,

Your obedient servant,
Charles F. J. Lord.

Hamstead, Nov. 25th, 1840.

VACCINATION.

To the Editor of the Medical Gazette.

Sir,

A lecture pointing out the true nature of vaccination was delivered by Dr. Cowan, at the Town Hall, Reading, on Friday, the 4th instant.

Similar efforts throughout the country would materially aid in removing the prejudices against, and in promoting the practice of this invaluable discovery. A.

Reading, Dec. 7, 1840.

ON UTERINE HÆMORRHAGE.

To the Editor of the Medical Gazette.

Sir,

The following statement is made by Dr. Francis Ramsbotham, at page 473 of his work, with plates, now publishing in parts:—"It has for a long time been known that the placenta may be found at the os uteri under labour; and this malposition was noticed by Guillemeau, Mauriceau, Amand, Astruc, Dionis, in France; Daventer, in Holland; Bracken and Pugh, in this country, besides others; but they all held the opinion that it was not originally apposed to this part of the uterus by nature, but that in consequence of some peculiar accidental circumstances it had become loosened from its attachment above, had fallen down by its own weight, and had thus accidentally placed itself over the uterine orifice."

I am aware that a statement similar to the preceding has often been made, though destitute of foundation. There is no passage either in the works of Guillemeau or Mauriceau to support it; and there are expressions employed by them in describing cases of placental presentation, from which it may be inferred that they believed the placenta in such cases to have been originally adherent to the neck of the uterus.

But Paul Portal, in his treatise, 1685, states in the most clear and decided manner that he found in not less than five cases the placenta adhering all round to the neck of the uterus. It is evident from the following extracts that he was as well acquainted with the circumstance as any accoucheur is at the present time, that the placenta was not, as Dr. Ramsbotham has asserted, "loosened from its attachment above, and had fallen down by its own weight, and had thus accidentally placed itself over the uterine orifice." Paul Portal's 39th case was one in which the placenta presented, and he recommended immediate delivery, by turning the child, as the only means of saving the patient's life. He introduced his fingers, and found the placenta adhering all round to the cervix.

"Sur cette assurance je glissay mes doigts dans les orifices, où je *sentis* l'arriere faire qui se presentoit et qui bouchoit l'orifice de la matrice de tous cotés avec adherence en toutes ses parties, excepte par le milieu, qui se trouvoit divisé jusqu'à la membrane."

In his 66th case the same thing was observed; and in case 68 he says he felt the placenta adhering firmly to the cervix uteri. "Alors je les evacuay, et je glissay mes doigts plus avant, où je sentis l'orifice interne ouvert à passer trois doigts fort mollet, tendre et delie; et introduisant le doigt, je sentis l'arriere faire qui se presentoit, et qui ètoit *fort adherent et attaché à l'orifice de la matrice de toutes parts*, ce qui causoit cette grande perte de sang." There are several other cases, exactly similar, in Portal's work, to which it is unnecessary particularly to refer.

I am sure Dr. Ramsbotham will be glad to render justice to Paul Portal in the next number of his work, and also to Mauriceau, who first pointed out the great distinction between the treatment required in cases of placental presentation, and those of uterine hæmorrhage in which the placenta had adhered to the upper part of the uterus, and been detached by some accidental cause.

If Dr. Ramsbotham will take the trouble to read Mauriceau's cases, he will find that after the year 1682, where the placenta did not present, he always ruptured the membranes, and left the child to be expelled by the natural efforts, as was afterwards so strongly recommended by Pugos. It is not, therefore, to our countryman, the late Dr. Rigby, as he asserts, but to Mauriceau, that we are indebted for this great practical improvement in the treatment of flooding at the commencement of labour. If I have now stated what is incorrect, let Dr. R. point out where the error lies.

Your obedient servant,
A STUDENT OF MIDWIFERY.

Dec. 5, 1840.

GLOUCESTERSHIRE MEDICAL AND SURGICAL ASSOCIATION.

Established for the purpose of *protecting the Character and legitimate Interests of the Profession*, and of *encouraging friendly and social feelings amongst its Members.*

RULES.

I. The president shall be elected annually, *and shall not hold the office for two years in succession.* If he can conveniently be present, he shall conduct the business of the society at each of the quarterly and annual meetings. In his absence another member shall be nominated to the chair.

II. The members shall be divided into those of the central, and those of the several district sections. Every medical practitioner shall be eligible to become a member of the association, and shall be admitted on the nomination or recommendation of any three members; but every member, if required to do so by the secretary, shall produce, within one month, proof of his legal qualification, or cease to be a member.

III. The *central section* shall consist of the members resident in Gloucester and its immediate neighbourhood, but its meeting shall, at all times, be open to any member of the association. Its peculiar duty shall be to prepare and lay before each annual meeting a report, based upon the proceedings of the several district sections and quarterly meetings.

IV. Each district section shall consist of the members resident in one of the larger towns of the county or its neighbourhood. It shall appoint its own secretary, and have the absolute controul of its own proceedings, transmitting them from time to time to the secretary of the association.

V. The secretary, who shall also act as treasurer, shall be annually elected; he shall be a member of the central section, and resident in Gloucester, and shall, at the expiration of his office, be eligible for re-election. He shall act as general correspondent of the society, receiving also and collecting the annual subscriptions, and paying any reasonable demands upon the association. He shall give notice, by public advertisement, of each general meeting; and shall, a fortnight at least before such meeting, give information, by letter, to the secretaries of the several district sections, of any motions or questions which, by notice previously given, stand for consideration at that meeting, in order that the said district secretaries may lay the same before the members of their respective sections a week at least before such general meeting. He shall (himself or by deputy) attend each quarterly and annual meeting, and take minutes of the proceedings. He shall submit the proceedings of all quarterly meetings, in their original form, to the annual meetings, and lay before the central section all the documents in his possession, and give such other information, connected with his office, as may be required. His travelling, and all other expenses (not including his annual subscription), shall be paid out of the general fund.

VI. Quarterly meetings, which every member who can make it convenient is expected to attend, shall be held at 3 o'clock on the first Tuesdays respectively of January, April, and July, at Gloucester, or at one of the larger towns of the county, the particular places of meeting having been determined at the previous annual meeting. The decisions of a quarterly meeting are not intended to be final, as regards the society at large, but rather to be looked upon as suggestions for the foundation of the annual report, and for the further consideration of the annual meeting—but, for the consideration of any important subject, which cannot be conveniently deferred until the annual meeting, the president may, by a public advertisement to that effect, give to any quarterly meeting the character and authority of an annual meeting, as far as that particular subject is concerned.

VII. The annual meeting shall be held on the first Tuesday in October, at *Gloucester*, or *one of the larger towns of the county*. The peculiar duties of this meeting shall be to appoint the officers, determine the places at which the quarterly meetings of the ensuing year shall be held,—take into consideration the proceedings of the previous quarterly meetings, and the report of the central section, and, upon these proceedings and report, frame such additional laws and regulations, and adopt such other proceedings, as, in the opinion of the majority of the members present, may promote the objects of the society. No existing law, however, shall be expunged, superseded, or altered, unless so determined by three-fourths of the members present. The meeting shall also be competent to originate and determine, by a majority of the members present, any professional question which may be brought before them.

VIII. Every member shall pay an annual subscription of seven shillings; such annual subscription being always considered due on the first of October.

IX. A dinner shall be provided at each quarterly and annual meeting, the expense of which, including wine, &c., shall not exceed *eight shillings* a head; and every member who does not attend the annual dinner shall forfeit the sum of two-shillings-and-sixpence, towards the general expenses.

X. Amongst the subjects to which the attention of the society will be more particularly directed are the following:—

The public interests of the profession, and legislation in Parliament thereon.

The internal regulation of the profession, and the intercourse of its members.

The remuneration of medical practitioners, either by public bodies or by individuals in general.

Medical police, and the protection of the public health.

XI. Members who are unable to attend the quarterly or annual meetings are authorized to communicate their opinions on any of the avowed objects of the Association, by letter addressed to the secretary, who shall lay the same before the next general meeting.

At a meeting of the Association held at the King's Head, Gloucester, on Wednesday, the 17th of November, 1840, the above rules were read and adopted.——Dr. Shute, of Gloucester, was elected president, and Mr. Wilton, secretary, for the year ensuing.

A CAUTION TO MEDICAL MEN.

To the Editor of the Medical Gazette.

Sir,

You will oblige me by taking notice, at your earliest convenience, of the following fraud, and by so doing I trust put your numerous readers so on their guard as to prevent its repetition.

On Friday last, the 20th, between the hours of 2 and 3 in the afternoon, when I was not at home, a middle-aged rather stout man, dressed in a blue pilot coat, drove up to my house in a private cabriolet and inquired for me: not finding me at home he then inquired of my assistant whether I practised cupping: being answered in the affirmative, he requested the loan of my cupping instruments, which were presented to him. He left, saying, "my compliments, my name is Parkinson, and I will return the case of instruments in *an hour*." I need only add that hour has not yet arrived, and never will. I fear this is not an uncommon way of robbing medical men; but should the same thing be attempted again I hope it will fail.

I am, sir,
Your humble servant,
Francis Ward,
Surgeon, &c.

Balham Hill,
Near Clapham, Surrey.
Nov. 25th, 1840.

NOTE FROM MR. WHITEHEAD.

To the Editor of the Medical Gazette.

Sir,

I should feel much obliged if you would allow me a word or two in your next Friday's Gazette in explanation of a passage in my communication on the operation for spinal distortion, published in your last number, which some of my friends appear to have misapprehended. At the conclusion of the article it is observed that the dorsal muscles of the right side (the side opposite to that on which the division was made) "continue to act in the manner above mentioned, and to increase in size." My meaning was, that the muscular mass was larger and more tangible, not, in all probability, from an increase in its structural development—an accession of new matter, as they seem to have understood it, as such a change could hardly be expected in the space of four or five days—but from an improvement in its tone, and attempt at approximation of its attachments.

Your humble servant,
J. Whitehead.

133, Oxford Street, Manchester,
Dec. 9, 1840.

ROYAL COLLEGE OF SURGEONS.

LIST OF GENTLEMEN ADMITTED MEMBERS.

Friday, December 4, 1840.

W. Wilson.—J. Powell.—J. J. Baylie.—H. Bedborough.—W. L. Meredith.—G. Wilkinson.—R. N. Milner.—M. C. French.

METEOROLOGICAL JOURNAL.

Kept at Edmonton, *Latitude* 51° 37 32" *N.*
Longitude 0° 3' 51" *W. of Greenwich.*

Dec.	Thermometer.		Barometer.	
Wednesday 2	from 36	to 47	29·99	to 30·22
Thursday . 3	24	39	30·38	30·42
Friday . . 4	23	36	30·34	30·29
Saturday . 5	29	41	30·24	30·20
Sunday . . 6	35	42	30·10	29·97
Monday . . 7	23	39	29·76	29·50
Tuesday . 8	30	43	29·24	29·19

Wind N.W. on the 2nd, North on the 3rd, West on the 4th; South on the 5th; N.E. on the 6th; S.E. on the 7th; and South on the 8th.

On the 2nd and following day, clear; the 4th noon clear, otherwise cloudy; the 5th and following day, overcast; raining during the afternoon and evening of the 8th.

Charles Henry Adams

NOTICES.

P.S. to Mr. Braid's communication, page 445:—"Since the above was written I have performed the operation three times, being in all *seven* times, with the most satisfactory results.—J. B. Dec. 7, 1840."

In the report of the Royal Medical and Chirurgical Society last week, Mr. Walter Jones, of Worcester, is erroneously stated as of Stafford.

Wilson & Ogilvy, 57, Skinner Street, London.

THE
LONDON MEDICAL GAZETTE,
BEING A
WEEKLY JOURNAL
OF
Medicine and the Collateral Sciences.

FRIDAY, DECEMBER 18, 1840.

LECTURES ON THE PRINCIPLES AND PRACTICE OF PHYSIC,

Delivered at King's College, London,

By Dr. Watson.

Lecture XIII.

Treatment of Inflammation. Antiphlogistic regimen. Blood-letting.

Treatment of inflammation.—I proceed to speak in a general manner of the measures that are proper to be adopted, when we are called upon to administer to the relief of a person labouring under inflammation: of what is sometimes called the *cure;* but, more correctly, of the *treatment* of inflammation.

In describing the phænomena and progress of inflammation, I took *external* inflammation as a *type*, and I shall keep that type principally in view in what I have to say respecting its *treatment*: making, however, such reference to the inflammation of internal parts as the subject will permit. You will bear in mind that my design at present is merely to explain the *principles* of treatment, generally: I shall point out, by and by, the application of those principles, and the modifications they may require, in respect to particular cases. I speak also, now, of *common* inflammation occurring in a previously healthy person. There are many observations that concern all inflammations alike, whether external or internal, and by despatching these in the outset, I hope to save much repetition hereafter.

In all cases of inflammation, our first object is, if possible, to obtain *resolution*: and if that be not possible, we next aim at securing that *event* of inflammation which would be the most fortunate in the particular case before us. In external inflammations *good suppuration* will generally be the most desirable event, after resolution: in internal inflammations it will be sometimes *suppuration*, sometimes *adhesion*.

It is necessary to keep in mind the distinction between the treatment proper for the inflammation itself; and the treatment that may be required for the *effects* of the inflammation. At present we are concerned only with the inflammation itself.

I stated to you in a former lecture that a knowledge of the *cause* of a disease might help us in its treatment. Knowing the cause, our first care must be to remove it, if we can. In the case formerly supposed, we should extract from the inflamed arm the fragment of glass. If the inflammation has been excited by the extremity of a *fractured bone*, of a broken rib, for instance, we take measures for bringing the separated bones into their proper places, and for keeping them there: if the mere *displacement* of a part has occasioned the inflammation, as the dislocation of a joint, the protrusion of the bowel in hernia, the first thing to be attended to is the restoration of the part to its natural situation: if there be any *chemical* source of irritation, (in the stomach, for instance, threatening or producing inflammation there), we eject, neutralise, or dilute it.

I know of but one exception to this rule, and it belongs to surgery: to wit, when a bullet or a splinter is so lodged in the interior of the body, that its extraction would be more hurtful or hazardous than its remaining where it is.

A knowledge of the cause of an inflammatory disease may help us in another way. We do not treat a joint that is inflamed in consequence of external violence, as we should treat the same joint when inflamed in rheumatism.

But it is very seldom, except in external inflammation, that we can accomplish the removal of the cause. In most internal cases, either it cannot be got at, or it has already ceased to be applied; as when the inflammation has been excited by exposure to cold. But it may be possible, and it is of the utmost importance when possible, to prevent any *re*-application or repetition of the same cause, which would be likely to frustrate our endeavours to bring about resolution.

Antiphlogistic regimen.—Next in importance to the removal and avoidance of the exciting cause, must be placed, in most instances, the observance of what is called the *antiphlogistic regimen*. This may seem an old-fashioned phrase, but it is a very convenient one; being a brief form of expressing the sum of several distinct provisions for the welfare of the sick, and for the conduct of their attendants. The word antiphlogistic is derived, indeed, from an obsolete theory; but we retain it as a useful arbitrary term, without reference to its etymology, or to its original meaning.

The object of the antiphlogistic regimen is to put and keep the patient in that state which is most favourable to the natural subsidence of the disease, or to the sanative influence of remedies. This regimen consists in the avoidance of every stimulus that can be avoided, whether external or internal. Common sense will suggest to you the details. It implies a total abstinence from animal food, and strong drink of all kinds. It prescribes the exclusion of all that may excite or exercise the mind, or produce a strong impression upon the senses: noise; bright light; great heat or cold. The patient should be kept in a temperature of about 62°, and in a well-ventilated apartment. He must not be allowed to converse, or to attend to matters of business; unless, indeed, his mind happens to be disturbed and anxious about some point which a short interview with a friend may effectually settle. All causes of strong emotion, and mental agitation, should be strictly guarded against. Whatever tends to quicken the circulation is to be shunned; and therefore not only those influences which operate through the nervous system, but also all needless bodily effort and exertion, must be prohibited. The patient (in the serious cases I am now contemplating) must remain in bed: and in a position which facilitates, or at least does not impede, the free return of the blood by the veins from the suffering organ. If the inflammation is seated in or about the head, that part should be elevated by pillows. If one of the lower extremities is affected, even when the disease is not so intense as to require confinement to bed, the limb must be sustained horizontally, or be even still more raised up. On the same principle it is that we suspend an inflamed hand or forearm in a sling. In some cases of internal inflammation—in pleurisy for example—the patient will choose his own position. He is admonished, by the pain and distress they occasion, that certain postures would be hurtful or dangerous, and he carefully avoids them. We often derive much information from this instinctive caution on the part of the patient.

The function of the organ inflamed should also be spared its exercise whenever, and in as great a degree, as that can be done. As you would not allow a patient to move an inflamed joint, so you must not permit him to use an inflamed eye; to speak more than may be absolutely necessary with inflamed lungs; to exert by thinking, and by attention to external excitements, an inflamed brain. This last rule is essential, even when the brain is not the seat of the inflammation: it is to be observed in all febrile disorders.

The adoption of this antiphlogistic regimen is not, indeed, necessary, nor even proper, in all cases and stages of inflammation. The inflammation may be so slight as not to require it; particularly in external cases, of which the causes and extent are known; as slight contusions, trifling wounds, and some kinds of eruption. But this exception must always be applied with great caution to cases of internal inflammation, about the causes, and extent, and tendencies of which we may be less sure. In chronic forms of inflammation again, as in scrofulous inflammation of the lymphatic glands, or of the eyes, attended with but little pain or heat, the antiphlogistic regimen would often fail to be beneficial: the state of the general system being such as to require support and strengthening measures, more than the local symptoms call for an opposite treatment. So also when suppuration or gangrene have supervened, the antiphlogistic regimen must generally be modified, or abandoned.

But in the outset of all cases of serious inflammation, when the strength is entire, and the inflammation intense enough to produce pyrexia, all the particulars of the antiphlogistic regimen may require to be observed.

Blood-letting.—Of all the *direct remedies* of inflammation, the abstraction of blood, bleeding, or blood-*letting*, as it is called, is by much the most effectual and important. We should, I think, be prepared to expect this, prior to any experience of it. Blood being the natural stimulus of the heart, we should deem it probable that the removal of a portion of that fluid would diminish the force with which the heart contracts: and as an inflamed part contains a preternatural quantity of blood, and as (with the exception of resolution and mortification, which really are *terminations* of inflammation—as with these exceptions) all the *events* of inflammation consist of the effusion of certain parts of the blood from its containing blood-vessels, we should be inclined, *a priori*, to believe that the amount of those effusions would be checked and limited by lessening the supply of blood to the inflamed organ, as well as by abating the force with which the blood reaches it. And we find it in fact to be so. The results of experience confirm, in this matter, the suggestions of our reason. Blood forms the pabulum of the whole process. "If," (says Mr. Lawrence) "we may be allowed to use figurative language, the obvious increase of heat in the part is analogous to that of fire; and blood is the fuel by which the flame is kept up: in fact if we could completely take away its blood from the part, we should be able entirely to control or arrest the increased action."

But it is not every case of inflammation that requires or warrants the abstraction of blood: and when blood-letting *is* requisite, the mode of taking away the blood, the quantity proper to be taken, and the propriety of repeating the bleeding, all vary greatly in different cases. It is obviously of vast importance that you should learn so to use this valuable remedy as not to abuse it. Its power is great for evil as well as for good: and in rash or inexperienced hands it too often becomes an instrument of fatal mischief.

There are, as you are all aware, several modes of abstracting blood: phlebotomy, arteriotomy, scarification, cupping (which is merely a variety of scarification), the application of leeches. Bleeding performed in either of the two first of these methods is called *general bleeding*. The rest are, in most instances, topical or *local*: but they are not *merely* topical in all cases. The main object of general bleeding is to diminish the whole quantity of blood in the system, and thus to lessen the force of the heart's action. The object of local bleeding is, in most instances, that of emptying the gorged and loaded capillaries of the inflamed part. Sometimes the blood is thus taken directly from the turgid vessels themselves; more often, I fancy, topical blood-letting produces its effect by diverting the flow of blood from the affected part, and giving it a new direction, and so indirectly relieving the inflammatory congestion. General bleeding has also incidentally a similar tendency to deplete the vessels concerned in the diseased process: and, on the other hand, a dexterous cupper, under favourable circumstances, will take away blood from a part as copiously and rapidly as if it were made to flow from an opened vein: and then the effect upon the *system* will be alike in the one case and in the other. The same may be said of leeches, when they are applied in the enormous numbers which our neighbours, the French, are fond of using. In whatever way the blood is drawn, whether from a vein or from an artery, or by the pressure of a cupping glass upon a surface previously scarified, or by the suction of leeches, the general effect upon the system will be in proportion to the quantity of blood abstracted in a given time. The most convenient and effectual mode of general bleeding, upon the whole, is certainly the common one, from the veins at the bend of the arm. But sometimes those veins are small or deep, especially in fat people; and we fail in our efforts to get the blood to flow from them in a full stream: and then we may open some other vein or an artery, or call in the cupper to our assistance, or cover the neighbouring surface with leeches; according to the situation of the part inflamed, and other circumstances.

Let us now briefly consider what the indications are by which we judge of the expediency of taking away blood. We are guided very much by the degree of pyrexia; by the quality of the pulse; by the importance of the organ affected; by the intensity of the inflammation, in what manner soever that may be measured; by the period or stage of the disease; by the age, and sex, and general condition of the patient; and frequently also by the ordinary character and course of the disease, when inflammation happens to be, or to accompany, an epidemic disorder. It is not one of these circumstances alone, but several of them, that we have to take into the account, in most cases: and what I have now to say in reference to them must needs be very general.

The presence of pyrexia, especially when the febrile disturbance is well marked, admonishes us, indeed, to search after other indications of the propriety of blood-letting, and confirms them if they are found; but is not, of itself, a sufficient reason for resorting to that remedy. There may be high febrile symptoms without any inflammation at all: as in the hot stage of an ague fit: and a smart attack of fever may spring out of local inflammation, and yet the known course of the disease, or the nature of the part affected, may render the abstraction of blood unnecessary, and therefore improper.

Our judgment is more often determined by the quality of the pulse, although we are by no means to be *wholly* directed by this. The quality of the pulse which—other things being the same—bespeaks the necessity of blood-letting, is *hardness*. I described this quality to you in a former lecture: it may coexist with a large or a small, a slow or a frequent pulse. Most commonly (and yet the exceptions are numerous), most commonly in acute inflammations the pulse is full and frequent as well as hard. The hardness is ascertained and measured by the resistance which the throb of the artery makes to the pressure of your finger. The pulse is sometimes said to be incompressible; which means that, although you apply your finger with considerable firmness, the blood still forces its way through the vessel beneath it.

Now this hardness of the pulse is sometimes our best warrant for active depletion by means of the lancet: yet I say we must not trust to this alone: for a hard pulse may habitually exist, where there is no inflammation. Certain chronic diseased conditions of the heart may occasion it; and it probably results also sometimes from some unnatural state, which is not inflammation, of the whole of the circulating system. When you happen to know your patient, and have ascertained what kind of pulse he has when he is well, and are previously aware that his pulse during health is *not* a hard pulse, that circumstance will certify that the new quality it has now acquired denotes the presence of inflammation; and usually of active inflammation, likely to go on, if not controlled, to the destruction of the part it has seized upon.

Many persons, and young practitioners in particular, are apt to look to the *frequency* of the pulse, when they wish to ascertain the expediency of blood-letting: but really its frequency is very subordinate in importance to its hardness or softness: and this is very unlucky, because any body with his stop-watch in his hand can *count* a pulse: but it is not every one who can tell a hard pulse when he feels it. The finger requires a certain education for that purpose; and there are some persons who seem never to attain the *tactus eruditus*. I should advise you to attend particularly to this quality of the pulse, and to compare your perceptions of the hardness or softness of the pulse in individual cases, with those of other persons.

The frequency of an inflammatory pulse ranges for the most part between 90 and 120. When the hard pulse is much more frequent than this, it commonly occurs either in young children; or in persons who are more than usually nervous and susceptible; or in persons who were previously labouring under some chronic and wasting complaint, in which the pulse was already frequent, though not hard: as, for example, in phthisical patients, when acute pleurisy supervenes upon tubercular disease of the lungs.

As the hardness of the pulse is, with certain exceptions at which I have just glanced, our lawful warrant for general bleeding; so the disappearance of that hardness is a token that the blood-letting has been carried far enough.

Again, the nature and importance of the organ affected will influence our judgment in respect to the question of abstracting blood. If the organ inflamed be a vital organ; or if we are not sure about that, but have any reason to suspect that it may be a vital organ; I need scarcely say that we must act upon the worst supposition, and bleed. But if the part be of less importance in the economy of the body; or if inflammation is known to run its course in that part without producing any abiding damage; it may not be worth while to have recourse to this potent remedy, even though the fever be high and the pulse hard, for the sake of subduing inflammation which is attended with so little danger. In this predicament may be placed many instances of cynanche tonsillaris, and of acute rheumatism. The subsequent debilitating effects of the loss of blood upon the system may be more certain and more hurtful than the effect of the bleeding upon the local inflammation is likely to be beneficial.

The period or stage of the disease forms a most important element in the question before us. It is of inflammation while yet in its early progress, that blood-letting may emphatically be pronounced the cure; while the disease is still within the possibility of resolution; before there is any great amount of effusion, or any serious disorganization of structure. The sooner we bleed, the more surely will the inflammatory process be moderated and limited, even when it cannot be wholly quenched. In no case within the range of medical practice is the maxim "principiis obsta" more imperative. Those among you who happen to be attending the wards of the Middlesex Hospital may wonder indeed, after hearing my estimate of the power of blood-letting over inflammation, that I so seldom prescribe venesection there. The truth is, not that I undervalue the remedy, but that the time for its employment has generally gone by. The poor are unwilling to relinquish the occupations by which they subsist: they struggle on as long as they can, and resort to hospitals only when they are compelled to do so by the exigency of their malady. Many of them, labouring under inflammation, have been freely bled before admission. It is commonly too late, when they present themselves, to expect that the course of the disease can be so arrested. The first effect of blood-letting is to deplete and relieve the labouring circulation. But when it is again and again repeated, it becomes (as the French say) *spoliative*; it robs the vital fluid of its nutrient and plastic materials. Pushed still farther, it produces a peculiar state of the nervous system, marked by great weakness and irritability. Now although blood-letting is the *summum remedium* for inflammation at its commencement; there is a point beyond which it not only does no good, but is positively injurious. And this point it is not always easy to hit. On one side is the danger that the inflammatory action may continue and extend; on the other the danger that the strength of the system may be so reduced as to prove unequal to the process of restoration: for, to remove the interstitial extravasations, and to repair the damage that has accrued, a certain degree of vital power is requisite, and a sufficient quantity of healthy blood. Bleeding will cure inflammation, but it will not always cure the effects of inflammation; nay, it may render them lingering in their departure—or even determine their fatality. I cannot too often, or too strongly, inculcate the precept, that in order to check and extinguish acute inflammation, you must, above all, bleed *early*.

We judge that the bleeding has been carried far enough when the inflammatory fever subsides or changes its character; when the pulse regains its softness, or undergoes some marked alteration; when any of the signs (already specified) of suppuration appear. Upon these points I hope to give you more explicit instruction when we come to special instances of inflammation.

Whenever inflammation supervenes on other chronic disease: whenever it arises in the progress of idiopathic fever, or whilst the constitution is contaminated by some specific poison: whenever suppuration is inevitable, or even probable: in all these cases general blood-letting may be necessary, but it must be employed with great caution.

Nor can we, safely, neglect the age, and sex, and general condition, of the sick person, when we are turning in our minds the propriety of bleeding. The very young, the old, and the feeble, do not bear well the loss of much blood. This consideration is not to deter you from bleeding such persons when they are attacked by dangerous inflammation; but it especially enforces, with respect to them, the general rule, that no more blood should be abstracted than is absolutely requisite to control the disease.

It is also very necessary to study the character and tendency of the reigning epidemic: whether that may depend upon some predisposition silently and gradually produced in men's bodies by the agency of causes that are but little understood; or whether it may result from some peculiarity in the exciting cause of a particular epidemic disease. I have been long enough in practice in London to have learned, in common with others, how much the character of continued fever may alter. Since about the time when the virulent form of cholera made its first appearance among us, continued fever has neither required nor borne the abstraction of blood as it did bear and require it for some years prior to that period. Perhaps some variation in the intensity of the poison may partly explain the comparative malignity—the greater tendency, I mean, to the typhoid type—which marks certain epidemics of scarlet fever, small-pox, and measles. The influenza, or epidemic catarrh, which was almost universal in this town and kingdom in the years 1833 and 1837, afforded a striking illustration of the point I am endeavouring to set before you. The inflammatory symptoms—the bronchitis, and sometimes pneumonia—were in many cases strongly marked, and it was necessary to abstract blood; but persons suffering under influenza bore bleeding exceedingly ill, and where the use of the lancet could not be avoided, it was never resorted to without reluctance and misgiving.

When we bleed in acute inflammation of an important organ, we endeavour, I say, to effect our purpose as speedily as possible, and with as little expenditure of the vital fluid as possible. It would be quite ridiculous to pretend to give any precise direction as to the number of ounces of blood that should be taken. You must stay by the patient, and bleed, in such cases as I am now contemplating, until you produce some distinct impression by the bleeding; and one of the best guides in this matter is the state of the pulse. If you find, as you sometimes will do, that the most pressing symptoms give way while the blood is still flowing—that the pain, for instance, is mitigated—that the respiration (when the lungs are concerned) becomes easier and deeper—that (in affections of the brain) the patient emerges from a state of stupor or delirium—you may be sure that you are doing right in bleeding; but you must keep your finger upon your patient's wrist, and suffer the blood to flow, until the hard pulse is sensibly softer, or until symptoms of impending syncope appear; and then you had better tie up the arm, and wait a few hours, and repeat the bleeding if the symptoms which at first demanded it again become urgent.

As it is desirable to produce the necessary effect upon the system as quickly as may be, the blood should be taken *pleno rivo*, *i. e.* a sufficiently large orifice should be made in the vein; and sometimes it may be right to open a vein in both arms: and the patient should be bled in the upright position. Faintness and syncope depend upon a defective supply of blood to the brain; and therefore will be likely to occur the sooner when the force of gravity facilitates the descent of the blood from the head through the veins, and retards its ascent towards the head through the arteries. And conversely, the first thing to be done towards remedying syncope is to lay the person flat in a horizontal posture, or even with his head lower than his trunk.

If you neglect these smaller matters, and make an insignificant slit in the vein, and suffer your patient to lie down when you are bleeding him, you will be obliged to take much more blood in the end; or you may drain him of his blood and of his strength by repeated bleedings of this sort, and make no impression after all upon the disease. It is one of the numerous cases in which parsimony is not true economy.

The quantity of blood requisite to be taken in order to produce the due effect is exceedingly various. It is a remarkable circumstance, well worth attending to, and much insisted upon of late years, especially by Dr. Marshall Hall, that a patient under the influence of mere inflammation will bear to lose a far greater quantity of blood without becoming faint, than he could bear in health: that the state of the system produced by the presence of inflammation protects it from the ordinary consequences of loss of blood. The amount of the bleeding necessary to occasion syncope will be in proportion to the exigency of the case. This fact—if it be really a fact, as indeed I believe it is—is evidently one of the highest value and importance, for it furnishes, what is always so desirable, especially in an uncertain art like ours, a simple rule of practice. Yet it is not a rule so firmly established as not to admit of exceptions. If the mere state of syncope was the curative influence required, we should have no difficulty. That the faintness does constitute a part of that influence I fully believe. Dr. M. Solon even relates a case in which it sufficed to the cure of erysipelas of the head and face, attended with high fever. The patient fainted from alarm, before the vein was opened. The inflammatory symptoms thereupon ceased: but with returning animation they presently recurred. Again preparation was made for venesection; and again the young lady lapsed into syncope: and this time the inflammation and fever disappeared, never to return. She is described as having been quite well the next day. I cannot, however, entertain a doubt that the withdrawal of a certain quantity of blood is, in almost every case, essential to the permanent control of common acute inflammation, attended with pyrexia: and it may be advisable to keep persons who, like M. Solon's patient, are of a timid disposition, and liable to syncope from slight causes, in a recumbent posture, in order that the requisite discharge of blood from the system may be obtained.

In equivocal cases (and there are many such), where it is questionable whether the symptoms proceed from inflammation or not, the diagnosis may often be settled by observing the quantity of blood which, taken in the upright posture, suffices to bring on incipient syncope.

Dr. M. Hall's book "*On the Effects of Loss of Blood*," is well worth your attentive perusal. He suggests that a scale of diseases might be formed, representing the protective influence of some diseases against the effects of blood-letting; and the opposite influence of some others in producing preternatural susceptibility of those effects. "It would begin (he says) with congestion of the head, or tendency to apoplexy; inflammation of the serous membranes, and of the parenchymatous substance of various organs, would follow; then acute anasarca; and lastly, inflammation of the mucous membranes. This part of the scale would be divided from the next by the condition of the system in health. Below this would be arranged fever; the effects of intestinal irritation; some cases of delirium; reaction from loss of blood; and disorders of the same class with hysteria; dyspepsia, chlorosis, and cholera morbus."

With respect to the propriety of *repeating* venesection, it is his remark, that if at the first blood-letting much blood flowed before any tendency to syncope manifested itself—an early repetition of that remedy will probably be required—and at any rate an early repetition of our *visit* to the patient will be proper. But this last precept is of universal obligation in all cases of serious inflammation.

I am almost afraid to tell you how much blood I *have* seen taken at one bleeding, lest I should seem to encourage you to imitate such heroic practice. I once stood by, and saw, not without trembling—although I was quite free from responsibility in the matter—a vein in the arm kept open until seventy-two ounces (four pints and a half) of blood had issued from it: and then, and not till then, did the patient become faint. The event of the case quite justified the bleeding in that instance, for the man got perfectly well. It was a case of general dropsy, which had come on suddenly, in a young and robust man. It occurred in the clinical wards of the Infirmary at Edinburgh: the physician had desired the clinical clerk to bleed the patient in the erect posture, until some sensible effect was produced upon his pulse: and no such effect could be perceived until the enormous quantity I have mentioned had been abstracted. It is very seldom that such large bleedings are required: you will generally find that five-and-twenty or thirty ounces, taken properly, will be sufficient to accomplish the purpose of the measure. Sometimes one such bleeding will extinguish, as it were, the inflammation; sometimes two or three, or half a dozen, may be necessary: and we judge of the propriety of repeating the venesection by the effect of the former bleeding; by the character of the pulse; by the appearance of the blood already drawn. It would be impossible, in a general account like the present, to lay down any minute directions on this head.

I have hitherto been speaking of bleeding, as we perform it for the cure of active inflammation, occurring in a person previously healthy, affecting an important organ, and attended with febrile disturbance of the system. But the abstraction of blood is scarcely less valuable as a remedial measure in *chronic* inflammation, when the system at large scarcely sympathises at all with the local disease. And here it is that what is properly called local bleeding is so useful—by cupping glasses, or a moderate number of leeches. The object is always the same, viz. to unload and relieve the turgid capillary vessels of the part: and this we could not do by general bleeding without carrying it to an extent which would be dangerous to our patient's existence. These local bleedings for chronic inflammation usually require to be often repeated. Considered as a remedy, blood-letting resembles some other remedies in this, that it must be proportioned and adjusted to the rate of progress, and the duration, of the disease. The remedy must be used chronically when the malady is chronic. A patient may lose, on the whole, much more blood for the cure of a chronic inflammation, than for the cure of one that is violent and acute: but then the bleeding must be spread over a larger space of time.

With respect to the relative merits and advantages of cupping and leeches, as topical remedies for local inflammation; it may be said in favour of cupping, that the precise quantity of blood taken away is more accurately determined in that manner, and the operation is sooner over, and is less fatiguing, than the suction of leeches. But on the other hand the leeches seldom bungle in the operation; while the surgeon often does. It requires a good deal of practice to become handy and dexterous in the application of the glasses—to avoid torturing and burning the patient—and on that account it is that in large towns, as in this metropolis, cupping is an art carried on by a distinct class of persons. You may apply leeches also to parts where the cupping glasses could scarcely be used.

General bleeding then is best adapted to acute inflammation; and topical bleeding is most appropriate in that which is chronic and slow. But a combination of the two is often highly proper and useful. You may lessen the force of the general circulation by venesection; but the small vessels of the inflamed part may remain unable to rid themselves of their excess of blood, and continue dilated and full. Such, at least, we may reasonably suppose to be sometimes the case; and certainly we often act successfully upon that theory; that is, we bleed from the arm, and at the same time, or presently after, we empty the capillaries of the labouring organ, or the neighbouring vessels, by the help of leeches, or the scarificator and exhausted cup. The effect of local bleeding, after the general febrile disturbance has abated under venesection, is often very marked in the relief of *pain*.

I have recommended blood-letting to you when, among other circumstances, the pulse is full and hard; and have stated that the blood should be suffered to flow until some distinct impression is made upon the system. But I wish also to apprize you, that you ought not to be deterred from bleeding merely because the pulse is small. It is very apt to be so in dangerous inflammations within the abdomen; and it is a very curious thing that the pulse will often rise, and the artery develope or expand itself during the time the blood is flowing. Now you must look upon *that* circumstance as a distinct impression made upon the system, although it is one of a rather different kind from what I spoke of before. You had better, in my opinion, pause when this effect is fairly obtained: for so great is the tendency to death by syncope in abdominal inflammation that it would not be prudent to urge the effect of the blood-letting farther, at one time, than the change I have just mentioned. Wait therefore, and repeat the venesection if the circumstances should again render it necessary.

LECTURES
ON
MORTIFICATION,

Delivered in the Medical Theatre of St. George's Hospital,

By Sir Benjamin C. Brodie, Bart. F.R.S. &c.

Lecture I.—Nov. 25, 1840.

A part of the animal body may lose its vitality, while the rest continue to live. We say then that it is mortified; and the process by which this change is brought about we call mortification, or sphacelus. The term gangrene properly signifies the commencement of mortification, or that condition of the affected part which immediately precedes mortification. But it is somewhat loosely employed, and not unfrequently is used as synonymous with mortification and sphacelus. This change, by which a living organ returns to the state of dead matter, viewed in connection with the changes by which it is preceded, and those which follow it, is one of the most interesting subjects in the whole science of pathology, and the treatment to be employed under these circumstances forms one of the most important inquiries belonging to practical surgery; and I am sure that you will not think your time ill bestowed if I call your attention to these matters in this and the following lectures.

The causes of mortification, as I shall explain to you hereafter, are various. If the part affected be one immediately concerned in the vital functions, the death of the entire animal is a speedy, if not an immediate consequence. If the part affected be one not directly necessary to life, still if mortification exist to a very considerable extent, so great an impression will be made on the whole system that the same result will probably ensue. Otherwise, after a certain period of time, another process becomes established, by which the dead part is separated or thrown off from the living. We distinguish this process, when it occurs in soft parts, by the appellation of sloughing, and the part separated is called a slough. When, however, it occurs in hard parts, as in the bones or cartilages, we call it the process of exfoliation, and we give the name of exfoliation to the dead bone which has become detached.

Sloughing and exfoliation are accomplished by ulceration of the living parts in contact with the dead. A thin layer of the living parts is absorbed, and the dead part is left lying loose on the ulcerated surface.

The period of time required for the completion of the process of mortification differs according to the circumstances under which the mortification takes place: it may be very slow; it may be rapid; it may be almost instantaneous; as I shall explain to you more fully hereafter. The period required for the completion of the after-process of sloughing varies also; *first*, according to the state of the system, and the activity of the vital powers generally; *secondly*, according to the organization of the part in which the disease occurs: thus, other circumstances being the same, the sloughing of the skin is much sooner accomplished than that of tendon, or than the exfoliation of bone; *thirdly*, according to the state of the neighbouring living parts, without reference to the state of the general system: thus, if there be much inflammation in them, the ulcerative process proceeds much more rapidly than when the inflammation is very slight; and *lastly*, as long as the mortification continues to spread there can be not even the commencement of the process of separation. The reason of this is so obvious that it can require no explanation.

I have seen mortification begin in an old man's toe, and be gradually spreading, even for months, up the foot and leg, without the least appearance of a line of demarcation, or the least attempt at sloughing. In the same manner a piece of dead bone may continue adherent to the living even for some years. If the disease, on which the death of the bone depend, can be arrested, as it sometimes can (by mercury, for example, or by sarsaparilla) the exfoliating process begins immediately, and when begun it is completed as soon as under ordinary circumstances.

The separation of the dead part is followed by another series of changes, which terminate in healing—or cicatrization. But these changes are not at all different from those which occur when there is a loss of substance in other ways, and it is not my intention therefore to enter into the consideration of them at present.

Having offered these general observations on the subject, I shall proceed to consider the various circumstances under which mortification may take place, and the treatment which it requires, accordingly as it arises from one cause or from another.

Mortification from Inflammation. — Mortification is described as one mode in which inflammation terminates. A very intense degree of inflammation may lead to this result in any structure, or in any constitution; but a moderate degree of inflammation may lead to it also in particular cases. Inflammation of cellular membrane terminates in mortification more readily than inflammation of the skin; and, in persons of bad constitution, the cellular membrane is more likely to mortify than in others. You see examples of this over and over again in the cases of the diffuse cellular inflammation which occurs in dram-drinkers. A small puncture of the leg, or a compound fracture in which the injury is apparently trifling, may, as you know, cause inflammation extending gradually from the foot to the buttock, and the whole cellular membrane may in the course of a few days become a putrid slough. I have seen a case in which a patient became affected in this manner from a leech-bite; and another in which a similar mischief followed the sting of a bee, and both these patients died. From what has since fallen under my observation, I have little doubt that they were both dram-drinkers, though I was not sufficiently acquainted with the subject to have my attention directed to it at the time. In the case of the man stung by the bee, however, something may perhaps be attributable to the operation of the animal poison; and I shall revert to this point hereafter. I once lost a patient with diffuse cellular inflammation ending in mortification after the simple operation of castration; and I was disposed to attribute this unfortunate result, in a great degree, at least, to the operation having been performed after a long course of the tincture of iodine.

If inflammation of the skin terminates in mortification, independently of any antecedent inflammation and mortification of the cellular membrane beneath, the inflammation is usually intense; the surface of the skin is of a dark-red colour, and there is severe pain and tenderness. As the inflammation advances, the skin assumes a livid appearance; a serous fluid is thrown out under the cuticle, which is thus elevated in the form of blisters; and then the skin itself perishes. If the mortification takes place to any great extent, the general system suffers. The pulse is feeble, irregular, intermitting; the countenance is anxious; the skin becomes cold; there is an utter incapability of exertion; and after a few days, and sometimes sooner, the patient dies. If the constitution does not suffer in this manner, or if the patient survives the shock, after a few days the separation of the slough begins to take place, and this is the first step towards a complete recovery.

In cases of diffuse cellular inflammation the occurrence of mortification is preceded by an abundant infiltration of serum. In some instances the serum is of a peculiar yellow colour, and the skin over the whole body, and the *tunicæ conjunctivæ* of the eyes, may assume the same appearance. I do not know to what cause this yellow tinge is to be attributed. The patient looks as if he were jaundiced; but he is not so in reality, for there is no bile in the urine. When mortification of the cellular membrane has begun to take place, the constitution suffers in the manner which I have already described. If the patient survives the shock, or lives for some time under it, the mortification of the cellular membrane is invariably followed by mortification of the skin over it to a greater or less extent.

Allowing for the difference of function in the affected organs, the foregoing description will apply pretty nearly to all cases in which inflammation of the soft parts terminates in mortification. If there be mortification of the intestine, there is an effusion of dark-coloured serum into the abdominal cavity. Whenever the part which mortifies is situated internally, so that the putrid serum formed round the slough cannot escape, the constitution suffers much more than where it is situated externally, and especially an intermitting pulse and hiccough are often added to the other symptoms. Probably these more aggravated symptoms are to be attributed to the pent-up putrid matter being in part reabsorbed into the circulation. I shall mention some circumstances hereafter which seem to favour this opinion.

It proves an interesting subject of inquiry, how is it that inflammation terminates in mortification; or what is the pathological explanation of this phenomenon? and this leads us to the question as to the nature of inflammation itself. Mr. Hunter describes it as consisting in an increased action of the small blood-vessels. If increased action be indicated only by a greater degree of contractility in the coats of the vessels, the theory is evidently wrong; for microscopic examination proves that there is no such thing. But, in fact, this is not what Mr. Hunter meant: and in another sense of the words he is clearly right; for the vessels of an inflamed part secrete serum, lymph, and pus, and build up new structures; in short, they do many things which they do not do under ordinary circumstances; and all this affords an abundant evidence of increased action. Another theory of inflammation which has been of late promulgated in opposition to that of Mr. Hunter is that the essential part of it is a debility, a weakened state, of the capillaries; and the propounders of this theory refer to the dilatation of these vessels in proof of it. But I own that I can discover no reason to believe that the dilated state of the capillaries proves any thing, except that there is something in the condition of an inflamed part which makes a greater supply of arterial blood necessary, and that they have the power of adapting themselves to those new circumstances. Nor is this power limited to the capillaries. It exists in the arterial trunks, in which the capillaries have their origin. Thus, in an animal killed by arsenic, in whom the poison produces extensive inflammation of the mucous membrane of the stomach and intestines, the branches of the mesenteric arteries are seen dilated to double their natural diameter. In like manner, when muscles are in exercise, or when a gland is pouring forth an abundant secretion, the capillaries become dilated so as to admit the increased quantity of blood which under those circumstances of greater activity of the organ is required; but no one dreams of their being therefore in a state of debility, and I see no difference, in this respect, between those cases and that of inflammation. But microscopic examination proves something more than the mere dilatation of the capillaries. "The blood itself is affected. It loses its globular structure, and previously to this the globules themselves are observed to have lost their repulsive properties, and either to agglomerate together or to adhere to the sides of the vessel in which they are contained," and not unfrequently they seem to stagnate, so as to choak up the vessel altogether, and destroy the circulation in it. Now if this happens in many vessels, the vitality of the part cannot be maintained, and thus the occurrence of mortification is easily explained. There is, however, something more than this in some instances. For example, let us suppose a case of inflammation of the cellular tissue of the scrotum. The cells are filled with serum. They are fully distended, and the skin is on the stretch. If nothing be done to the part, the cellular membrane first, and the skin afterwards, will mortify to a great extent. But make some incisions with the point of a lancet, and the serum escapes in sufficient quantity to relieve the tension, and the mortification is in great measure, or perhaps wholly, prevented. It is reasonable to suppose, that, in consequence of the extreme distension, the fluid in the cellular membrane causes so much pressure on the vessels which supply the skin as to impede the passage of the blood through them, and that the punctures of the scrotum and the escape of the serum prevents the mischief which would otherwise have ensued, merely by removing the pressure. When a common abscess opens, as it sometimes does, by mortification and sloughing of a portion of the skin over it, we are not to regard the mortification as the mere result of inflammation, any more than in the case which I have just stated. The ulcerative process going on under the skin destroys a portion of the vessels by which the skin is supplied, and the pressure of the matter probably prevents the free passage of the blood through those which remain; and thus a due supply of blood being prevented, the skin perishes.

Treatment of cases in which inflammation terminates in mortification.—Whatever tends to lessen the violence of the inflammation, ought to prevent, or check the progress of, the mortification; and, on these grounds, the patient ought to derive benefit from the abstraction of blood.

But, on the other hand, the abstraction of the blood by which the life of a part is supported, if carried beyond a certain point, is of itself an adequate cause of mortification; and the abstraction of even a small quantity of blood may lead to this result under certain circumstances.

It is not by a reference to principles alone that you can learn how you should act in this dilemma. Experience is our safest guidance, and on this as on many other occasions, the mere practical surgeon will have a great advantage over the mere scientific pathologist.

If the inflammation be intense, if the pulse be strong and full, the countenance flushed, and the skin hot,—that is, if there be marks of great general excitement of the system, it is probable that the patient will derive benefit from blood-letting; and if you have reason to believe that he is of what may be called a sound constitution, blood may be drawn to a considerable extent, and the blood-letting may be repeated. I have often adopted this practice under these circumstances with the greatest success, not only where the purple colour of the skin and the existence of vesications shewed that mortification was impending, but where it had actually begun; and have had the satisfaction of seeing the progress of the mortification immediately suspended. You will have no better opportunity of watching the beneficial results of such a mode of treatment than in some cases of sloughing sores or chancres on the *glans penis*. While you administer opium and stimulants, the marginal inflammation increases, and the sloughing continues to spread. Take some blood from the arm, and the inflammation becomes abated, and the progress of the sloughing is suspended. Repeat the blood-letting, and the sore assumes in a short time a healthy aspect. In such cases I have known nature accomplish what was wanted, while a timid surgeon was doubting how to act. There has been a spontaneous hæmorrhage; the patient has lost half a pint or even a pint of blood. Immediately the pain, the tension of the surrounding part, the redness, and the general excitement, have been relieved; and in the course of a week the sloughs have separated, and the sore has become covered with healthy granulations.

But there are other cases in which blood-letting would be as mischievous as it is useful under the circumstances which I have just described.

Let us suppose a patient who has been a dram-drinker, or who, belonging to the more affluent classes of society, has indulged in too copious libations of wine, or whose constitution has been otherwise impaired, and that he has received some injury of the leg, followed by diffuse inflammation, which threatens to terminate in sloughing of the cellular membrane, and afterwards of the skin; or in whom the mortification of these textures has already begun: let us suppose also that although inflammation is spreading rapidly, it is not marked by any very urgent symptoms: that the pulse is small and feeble; and the countenance expressive of anxiety. Now, if, under these circumstances, you abstract even a moderate quantity of blood, it is probable that you will hasten the progress of the local mischief; and if blood-letting be employed to a considerable extent, it will certainly destroy what little chance there might otherwise have been of the patient's recovery. Let us suppose another case. There is a chancre or other sore on the penis. It is surrounded by a languid inflammation; the neighbouring parts are gradually assuming a dark livid appearance; the pulse is small and quick, or no excitement of the general system. Under these circumstances also, the abstraction of blood, instead of checking, will cause a more rapid progress of the disease.

Now it is highly important that you should learn to distinguish these two classes of cases from each other: and in a great number of them you will have no difficulty in doing so. You cannot, however, draw any exact line between them: and cases will occur in practice, in which you cannot exactly determine, in the first instance, which is the proper course for you to pursue. Here you must proceed cautiously, watching daily the operation of the remedies which you employ, and persevering in one mode of treatment, or adopting another, according to the effect produced; and frequently it may be right to take away a moderate quantity of blood in the first instance, and to have recourse to an opposite mode of treatment almost directly afterwards.

In order that I might bring the subject before you in its simplest form, I have hitherto referred merely to the question of blood-letting. But of course this involves much other treatment. Where blood-letting is proper active purgatives will be proper also, as well as saline and diaphoretic medicines; and every thing in the shape of stimulating liquors and food should be avoided. Where blood-letting, on the other hand, is improper, though aperient medicine may be required, very active purgatives should be avoided. The patient should be allowed such diet as his stomach is capable of digesting; and he should have wine, or ale, or even brandy or gin—the quality, as well as the quantity, of the stimulus varying according to the character of the symptoms, and his previous habits. I say his previous habits; for it is essential that you should always inquire what these have been, and act accordingly. It is rarely safe to deprive a dram-drinker, for any considerable time altogether, of his usual stimulus; and the effect of a judicious exhibition of it is very remarkable, not only in arresting the progress of mortification, but in abating the violence of the inflammation which leads to it. Decoction of bark, quinine, and other tonics, may be useful under certain circumstaeces; but I must say that the longer I live, and the more I see of these cases, the less is my faith in such remedies, while inflammation and mortification are going on: and I am satisfied that they often do great harm, by loading the stomach, and interfering with the digestion of food. At a later period, however, when the progress of the mortification is stopped, and the sloughs are beginning to separate, I have no doubt that they are eminently useful. The repeated trials which I have made, and seen made, of ammonia, have not left on my mind any more favourable impressions of this remedy than those which I entertain of bark and quinine. It is a temporary stimulus; but alcohol, prudently administered, is much better: and my observation leads me to suspect that large doses of ammonia, if persevered in for a considerable time, tend to depress the vital powers, and lessen the chances of recovery. Opium is useful under certain circumstances: as where there is severe pain; or where the inflammation and mortification depend on the operation of a specific poison.

I have already had occasion (with a view to explain the pathological phenomena of mortification) to advert to the effects of incisions made through the skin into the cellular membrane, when the cells of the latter are exceedingly distended with serum. Whether the explanation which I then ventured to offer of the mode in which this serous infiltration operates in producing mortification be or be not correct, there can be no doubt that the evacuation of the serum, and the consequent relief of tension, will go far towards preventing an extensive mortification in all cases, and will prevent it altogether in a great many. It is not, however, always necessary for this purpose that we should make scarifications or incisions. Mere acupunctures are not unfrequently sufficient. I have on many occasions requested the house-surgeon of this hospital to make punctures where this serous infiltration of the cellular membrane was going on, every morning and evening, or whenever he had the opportunity of doing so; and it often has happened that nothing more was required. But of course this simple practice is useful only in an early stage of the disease—where there is that state of things which may lead to mortification, but where mortification has not actually taken place. Where sloughs of the cellular membrane have begun to form, or where an infiltration of pus has begun to follow the infiltration of serum, mere punctures of course will be insufficient. Incisions or scarifications will then be required; and they should be of sufficient extent to allow the serum and pus to escape freely, and to relieve the tension of the skin. But they should not be more than this: first, because such painful operations are a great shock to the nervous system of a person in vigorous health, and a very great one indeed to one who is weakened by previous disease: secondly, because this shock is not given to the system once for all, as, if the inflammation spreads, it may be necessary that the incisions should be repeated: thirdly, because in proportion to the extent and depth of the incisions, is the danger of hæmorrhage; the occurrence of which, to any considerable extent, is sufficient to prevent the patient's recovery. In making the incisions, you should always bear in mind that it is of vital importance that there should be as little hæmorrhage as possible; and here you will find the advantage of having some active and intelligent assistants, who will carefully watch your lancet or scalpel, and whenever they see a vessel beginning to bleed make pressure with the finger on it. Ligatures may be sometimes required; but not in general. The divided vessels under these circumstances bleed profusely in the first instance, but they soon contract, and the pressure of the finger for a few minutes is usually sufficient to stop the hæmorrhage altogether.

The foregoing observations apply to all cases in which inflammation of cellular membrane has already begun to terminate in gangrene, or threatens to do so, whether the inflammation be phlegmonous or erysipelatous, or that peculiar variety of inflammation which produces carbuncle. The effect of scarifications in preventing the further progress of mortifications of the skin in all these cases is very remarkable: but under certain circumstances they produce a still greater benefit to the patient. Whenever putrid matter is pent up round a slough of the cellular membrane, the system is, as it were, poisoned. The sulphuretted and carburetted hydrogen gas evolved during the decomposition of dead animal matter, seem to pass, in part at least, into the circulation, and produces the most dangerous symptoms. The incisions, which relieve the tension of the skin, allow these noxious gases to escape, and the relief which this affords to the patient is most remarkable. I might, if it were necessary, enumerate a great number of cases in illustration of what I have just observed. One, however, will be sufficient: and this I am tempted to relate, because the subject is one of great importance, and because a particular instance may serve to impress it more on your minds than a mere general observation. I was called some few years since to see a gentleman, who appeared to be actually on the point of death. His extremities were cold: his pulse barely perceptible. It was doubtful whether he was sensible or not. He made, on being roused, several imperfect attempts to speak, but could say nothing intelligible. Below the right hypochondrium there was a considerable tumor; the skin being of a dark red colour, on the verge of mortification. I said to myself this gentleman ought not to be allowed to die without it being ascertained what this tumor is. On examination with the fingers I perceived a sort of emphysematous crackling, and only an imperfect fluctuation. On making a free incision, I discovered underneath the discoloured skin what might be called a quagmire of slough. A small quantity of putrid matter escaped. But there escaped also such a quantity of noisome and offensive gas, apparently sulphuretted hydrogen, that I could scarcely bear to remain in the room. The stench pervaded the whole house, and even could be perceived in the garden round it. Within two minutes after the performance of this operation, so trifling in appearance, but so important in reality, the patient looked up, and said quite distinctly, "What is that you have done which has made so great a difference in my feelings?" At the same time the pulse returned at the wrist, and from this moment he recovered without any further unfavourable symptoms. After a few days sloughs came away, probably of muscle, cellular membrane, and peritoneum, in a confused mass; and with them a gall-stone of moderate size—explaining, to a certain extent, at least, the origin of the disease.

The cases in which you will most frequently have occasion to resort to the employment of scarification are those of diffuse cellular inflammation of the extremities, whether it be phlegmonous or erysipelatous, and those of carbuncle. But there is another class of cases, which occur after injuries, and often after slight injuries of the scalp, in which the same treatment will be required; to which, before I conclude this present lecture, I am tempted to draw your attention. *First*, because they will serve to illustrate the observations which I have already made; and *secondly*, because the disease is one with which you ought to be made acquainted, but which, as far as I know, has not been distinctly described by surgical writers. Here, as in cases of erysipelas of the skin, there is a rigor followed by an attack of fever preceding the local symptoms. The latter shew themselves in the form of pain in the neighbourhood of the wound or contusion, and an œdematous swelling of the scalp, without any redness of the skin. The swelling pits on pressure. It spreads over the whole scalp to the forehead, and sometimes over the whole face, the skin still retaining its natural colour, or even appearing paler than natural. The progress of the swelling is accompanied by pain in the head, and a continuance of febrile symptoms. In some cases, the disease, after having continued for 10 or 12, or perhaps 14 days, begins to subside; the serum which caused the œdematous swelling being gradually absorbed without any further mischief. In other cases suppuration takes place underneath the scalp, with extensive sloughing of the cellular membrane, and this is followed by sloughing not only of the scalp above, but of the pericranium underneath. I have known the latter destroyed to such an extent as to lay bare a large portion of the bone of the cranium. If you would prevent all this great mischief, you must by one method or another relieve the tension caused by the œdematous effusion into the cellular membrane. Simple acupunctures are often sufficient for this purpose, provided that they are repeated once or twice daily for several successive days. Where a sufficient quantity of the serum does not escape by the punctures, large openings are required, and incisions must be made through the scalp, and the subjacent textures, quite down to the cranium. These must be repeated from time to time, as the disease extends from one part of the scalp to another. The appearances observed when these insisions are made explain in some degree the seat and nature of the disease. There is a slight effusion of serum immediately underneath the scalp: but the great effusion, and that on which the tumefaction chiefly depends, is underneath the tendon of the occipito-frontalis muscle; and here the effusion is in some instances so extensive, that I have known the tendon to be separated as much as half an inch, or even more, from the pericranium. A large quantity of serum immediately escapes on the incision being made, the tension is of course relieved, and the destruction of the parts is prevented. I suspect this disease to be a form of erysipelas, although the skin is not usually inflamed, as every now and then it assumes the character of true erysipelas as soon as it reaches the face.

Let us now suppose that mortification has taken place to a certain extent; that the progress of it is arrested; and that the system survives the shock; what further local treatment is required?

Indeed, I have little faith in any. The separation of the slough is a natural process. It is usual to apply stimulating, or as they are called digestive ointments; solution of chloride of soda; stale beer poultice, and other things of the same kind. But my own experience would lead me to believe that the process of separation will go on just as fast with the simplest treatment, such as that of a bread and water poultice, or a linseed poultice, or wet lint with a piece of oiled silk over it. The constitutional treatment at any rate is of much more importance than any topical applications. Bark may generally be given with advantage: but the discreet administration of wine and a nourishing diet is of more importance still. Of course no general rule can be laid down. You must study the existing symptoms, and act accordingly.

COLOURLESS GLOBULES IN THE BUFFY COAT OF THE BLOOD.

Mr. Addison presents his compliments to the Editor of the Medical Gazette, and would be obliged by his giving the accompanying communication a place in the next number of that Journal.

Great Malvern, Dec. 10th, 1840.

When blood is drawn from the arm, coagulation usually takes place in from five to ten minutes; the whole mass in that period becoming a soft solid. As this jelleying or solidification proceeds, the surface puts on various appearances in health and disease: it may be red and homogeneous, or red with a curdled flocculent aspect, variously patched with purple or buff; sometimes there is a clear transparent fluid swimming above those portions containing the red globules, and occasionally this is superseded by an opaque dirty yellow fluid, which entirely obscures all the red portions of the blood.

When the surface of the coagulum is patched with purple or buff, the blood is said to be sizy; when the clear oily-looking fluid swims at the surface, and the red globules are subsiding entirely from it, the clot will be buffed and cupped; and when the dirty yellow opaque fluid occupies the upper portion, the buffy coating will be very dense and thick.

After standing some time the coagulated blood separates from the sides of the vessel in which it is contained, and the serum begins to exude from the coagulum: this exudation goes on for some time, and at length the *clot* is formed, which continues to contract its dimensions for at least eighteen or twenty-four hours.

It will be convenient, practically, to make a distinction between the coagulum and the clot; the former contains the whole of the constituents of the blood, and is formed generally in the short period before specified. The *clot* is the coagulum freed from the serum, and contains only the spontaneously solidified materials with the globules.

The clot, or crassamentum, in health, is altogether red, and is usually considered as consisting of two parts: the fibrine, or coagulable lymph, which gives it solidity, and the red globules. During pregnancy, in rheumatic and other inflammatory diseases, the clot exhibits two distinct portions; the lower red, and consisting of the same materials as in health, and the other yellow whitish, or buff-coloured, forming the inflammatory crust, and consisting of coagulable lymph free from any red globules. There can be no doubt but this inflammatory crust is an important character, having some influence or share in the cause of many diseases; being thicker, tougher, and more completely free from red globules, in those disorders of a serious inflammatory character. It is therefore of great importance to understand its real nature.

Case I.—J. B., a man aged 60: ill with acute rheumatism; pulse from 65 to 70, feeble. V. S. to 12 oz.: blood drawn into three cups. In a quarter of an hour the first portion had a purple surface, streaked with red; the surface of the second was entirely a dirty yellowish buff, without any visible red globules; the third was similar to the first.

On gently dipping the point of the finger on the surface of the second portion, and before the coagulation had taken place, a clear colourless drop adhered to it, which, when transferred to a piece of glass, and examined by a common lens, against the light, was found to contain an immense multitude of clear colourless globules.

Case II.—G. R., a man aged 52: ill in bed with pleuritis. V. S. to 16 oz. In five minutes the whole surface of the blood presented an opaque, shreddy, or flocculent appearance: no red particles were visible except a few round some bubbles of air. The following morning the clot was covered by a thick, tough, buffy coat; and in the cupped centre was a jelly-like matter of looser consistence. This patient was bled again the following day: blood just the same. Before the coagulation had proceeded, and while the upper portion was yet fluid, I took up three or four tea-spoonsful quite free from any red globules, and placed them in another cup: in a short time it was coagulated; and after some hours a tea-spoonful or more of clear serum had separated, leaving a tough buffy coagulum. Hence it is obvious that the first change in inflammatory blood is its separation *into two fluid* portions; the *upper* colourless, or of a yellow buff colour; the *lower*, red. The next change is the coagulation of both these portions. After this the serum separates, part exuding from the upper *buff* portion, and part from the lower *red* portion.

Case III.—J. H., aged 45: ill with acute rheumatism. V. S. to 16 oz. The blood had all the characters of Case II. In five minutes a thin pellicle or film had formed on the surface, which, in another five minutes, became thicker and more stringy: underneath this was a clear colourless portion still fluid. On dipping the point of the finger in the surface, and transferring a colourless drop to a piece of glass, an immense multitude of separate, distinct, and colourless globules (evidently lymph, or altered blood-globules, free from any colouring matter) were seen floating in the clear liquid. In this case the clot evidently contracted its dimensions, or continued to diminish in size, for twenty-four hours.

If a small portion of fresh blood is examined by the lens, or by a low power in the microscope, the red globules are usually found congregated and entangled together in ragged confused masses; and this may be seen even by the eye alone, the blood appearing curdled. On the other hand, the colourless globules of the buffy coat do not appear so; they remain much more separate and distinct; and when they do coalesce, they form strings, films, or lines.

In this case I placed several drops of this clear coagulable liquid on the glass: in a few minutes coagulation commenced in streaks and films, all of which were evidently composed by the aggregation of the globules. After this four or five teaspoonfuls of the same fluid were placed in a clean cup, which, by the following morning, had separated with a tough buffy clot and some clean pale serum; the former weighed 717·5 grains; the latter 677·5 grains, or 51·5 per cent. buffy clot, and 48·5 serum. This is a large proportion of serum, and shews the strength or firmness of the coagulation by which a larger proportion of serum was squeezed out than would have been the case from a clot with the red globules. The form of the clot in buffy blood is generally contracted and concave, and of a less diameter than the lower red portions.

Case IV.—M. J., a woman, aged 38, very ill with quinsy. V. S. to 14 oz.: blood drawn into two cups. In about eight minutes there was a considerable quantity of clear liquid swimming like oil on the surface of the blood first drawn, and through this a quantity of flocculent tufts, just like curdled soap, of a dirty yellowish buff colour, could be seen, and these quite obscured the red portion of the blood.

On dipping the point of the finger into the clear liquid, it somewhat disturbed the coagulating process, and a thin gelatinous film adhered to it, together with some of the still fluid portion: both were placed on a piece of glass and examined by the lens (a Coddington) against the light, when a great number of the same colourless globules could be seen, and the coagulated film appeared to be composed entirely of these globules adhering together. Here the clot did not attain its smallest dimension till the end of eighteen or twenty-four hours.

On the following day I bled the patient again, when the blood displayed the same appearances. Half a teaspoonful of the clear or colourless liquid swimming on the surface was placed on a piece of glass. On examination by the lens an immense number of the same globules were found floating in it. In about five minutes the coagulation commenced by the formation of numerous opaque streaks and films, which were evidently composed by the aggregation of the globules. In a short time the whole was jellied, and some serum separated. During this change the coagulum becomes opaque, and its composition cannot then be detected.

From these experiments it is evident that inflammatory or buffy blood has two kinds of globules; the heavier red globule sinking to the bottom, and forming the lower portion of the clot, and the colourless lighter globules swimming at the top.

Müller enters pretty minutely into the cause and appearance of the inflammatory crust, but makes no mention of any globules to be found in the fluid from which it is formed. On the contrary, he distinctly states that the fibrine of the blood is really dissolved in the liquor sanguinis, and that it does not exist in the blood in the form of globules *.

I am still pursuing my investigations on this subject: in the meantime I hope this brief communication will be the means of drawing attention to the subject—now that we are fast reverting to a "modified humoral pathology."

MIDWIFERY CASE.

To the Editor of the Medical Gazette.

SIR,

IF you imagine the following statement will be read with interest by the medical public, perhaps you will find it a place in your weekly publication.

I was summoned some days since to attend Mrs. ——, aged 27 years, and the mother of two children, and on my arrival found her in labour, but very weak and languid, having suffered from ill health during the greater part of her pregnancy. Having ascertained that the parts were fully dilated, and that it was from mere want of uterine action that the labour was not completed, I gave the patient ℈i. of the secale, but did not rouse the uterus to efficient action to complete labour: therefore, having waited a proper time, I repeated the dose, and expulsion of the child and placenta was soon accomplished; but no sooner had this taken place than violent sickness came on; syncope to an alarming extent; cold perspirations, &c. I administered brandy, ammonia, and various stimuli, and after two or three hours she was sufficiently recovered for me to venture to leave her, giving strict directions, in case of return of symptoms, to apprise me, as I was not living far distant. I left her about two o'clock A.M., and saw her again at nine, when I found the sickness had not returned, and that she had rallied considerably; but the symptoms were these:—Great pain in the head, with giddiness; a full staring eye, and to a great extent unconscious of what was passing around her; breathing humid; pulse small and quick; and continued and violent pain or cramps in the lower extremities. Regarding the symptoms as the result of the ergot, I cautiously emptied the stomach and bowels, and then gave every three hours nitro-muriatic, or, according to the present nomenclature, nitro-hydrochloric acid, taking the precaution to render the room dark. Having met with a nurse, who had good sense and good nature, I gave strict injunctions to keep the house perfectly quiet. I saw the patient again in the evening, and found her much improved: bowels relieved twice; the brain evidently returning to its accustomed functions, and the cramps in the legs better. I have seen her daily since, and she is now convalescent. In her former pregnancies and labours she had been in good health, and labour had generally terminated in three or four hours, and her previous medical attendant had never required to give her any thing to assist her labour. There could be nothing unusual in the ergot, for I have used some from the same parcel repeatedly; therefore I conclude there must be some peculiarity in this individual more than mere derangement or common irritability of stomach.—I am, sir,

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* Physiology, pp. 124, 128.

Your obedient servant,
Alfred Crabb.

March, Cambridgeshire,
Nov. 23, 1840.

POISONING WITH BINOXALATE OF POTASS.

To the Editor of the Medical Gazette.

Sir,

Should you deem the following case of poisoning with binoxalate of potass, which was attended by my father and myself, of sufficient interest for a place in your journal, I shall feel obliged by its insertion.—I am, sir,

Your obedient servant,
John Jackson, M.R.C.S.

30, Church Street, Spitalfields,
Dec. 7, 1840.

A female, of about 20 years of age, took on the morning of the 13th of November, 1840, some binoxalate of potass, which she had previously dissolved in some hot water. The quantity taken was, as nearly as could be ascertained, about an ounce. About an hour and a half after having swallowed it, she was found by the servant lying on the floor quite faint, having been previously very sick. On being visited, as soon as the nature of the poison had been ascertained, ℥iv. of Mist. Cretæ were administered, with the view of neutralizing the acid of the salt, if any remained on the stomach. At this time she was in a state of extreme depression; the pulse being so feeble that it could scarcely be felt; the skin cold and clammy; and the face and lips pale, with continued rigors affecting the whole body. She complained of a scalding sensation in the throat and stomach, of pain in the back, and of great soreness of the eyes, with dimness of vision. The conjunctivæ of both eyes were a good deal injected, and both pupils were dilated, though the eyes were exposed to a pretty strong light, as the patient was placed opposite to a window. Immediately after the administration of the Mist. Cretæ she was well wrapped up in warm blankets, and bottles filled with hot water were applied to her feet. She also took occasionally some ether and tincture of opium in camphor mixture. The state of depression continued for a about an hour after these means had been adopted for its relief. At the end of this time reaction began to take place, and in a short time was fully established; the pulse becoming full and quick; the skin hot; and the countenance flushed. She now complained of throbbing pain in the head, and of great thirst. The scalding sensation, which at the commencement was felt in the throat and stomach, now extended more or less over the abdomen, being accompanied by tenderness on tolerably firm pressure being made. Eighteen leeches were now applied to the abdomen, and followed by warm fomentations. After the abstraction of blood by the leeches, the faintness recurred, which rendered necessary the readministration of a stimulant. Some carbonate of ammonia was given, and the patient rallied again. The abdominal tenderness, though diminished, still existed, being accompanied by constant sickness. A mustard cataplasm was now applied to the scrobiculus cordis, and some calomel and opium were administered every three hours.

Nov. 14th.—On being visited this morning she expressed herself much easier, having slept a little during the night. The abdomnial tenderness being almost entirely gone, and her bowels not having been open since the day previous to that on which she took the poison, some carbonate and sulphate of magnesia were given every four hours. It was necessary to omit this medicine once during the day, in consequence of a return of the fainting, which was relieved by the administration of some ether and tincture of opium.

15th.—She states that she passed a tolerably good night, the bowels having been freely opened. From this time, until her leaving London, in two days after, she rapidly improved, the only symptoms remaining being those indicative of irritation of the mucous membrane of the alimentary canal, to relieve which demulcents and opiates were given with success. At the time of her quitting town she seemed quite well, with the exception of debility.

The above case is interesting in two respects. In the first place, as far as I am aware, instances of poisoning with binoxalate of potass are seldom met with, a circumstance the more to be wondered at, as the salt is extensively used as a decolorizing agent by those who prepare straws for the manufacture of bonnets, &c. The individual who is the subject of the above account was engaged in a business of this sort. In the second place, though the symptoms were in the main very similar to those which have been observed in cases of poisoning with oxalic acid or its salts, yet in some particulars they were essentially different. The injection of the conjunctivæ, the dimness of vision, and the dilated condition of the pupils, which existed during the state of depression, and which gradually disappeared after the establishment of reaction, are circumstances which are not adverted to at all by Dr. Christison, in his account of the effects of oxalic acid and its salts, and which, therefore, I presume, have not been previously noticed. There was in this case no tendency either to tetanus or coma, both of which symptoms were observed by Drs. Christison and Coindet, in their experiments with the salts of oxalic acid.

REMARKS ON THE MORTALITY OF PUERPERAL WOMEN IN GREAT TOWNS.

To the Editor of the Medical Gazette.

Sir,

In the paper on Uterine Hæmorrhage by Mr. Adams*, the following observation occurs:—"According to Mr. Farr the proportion of deaths from child-bed is 71 per cent. greater in towns than in the country. It would be important to know whether abnormal implantation of the placenta be one of the causes of this greater mortality. For this reason, as well as many others, it would be much to be desired that medical statistics were more cultivated."

There can be little doubt that the cause of this greater mortality in towns than in the country is owing to the existence of lying-in hospitals in the former; and there is no subject more deserving of attention than an investigation into this subject. Dr. Lee observes at p. 114 of his work on the Diseases of Women, 1833, "I cannot conclude this important subject without pointing out the urgent necessity which there exists for a full investigation of the means calculated to prevent the occurrence of puerperal fever, or uterine inflammation, in lying-in hospitals, where its dreadful fatality has been recorded by all writers since the foundation of these institutions. From the Registers of the British Lying-in Hospital, the Maternité at Paris, the Dublin Lying-in Hospital, and the tables of M. de Chaleauneuf, it is proved that the average rate of mortality greatly exceeds that of institutions where individuals are attended at their own habitations; and if it should ultimately appear that all precautions are unavailing in diminishing the numbers attacked by the disease, it becomes a subject deserving the most serious consideration, on the ground of humanity, whether lying-in hospitals should not be looked upon as injurious rather than beneficial to society. From what has fallen under my own observation in the British Lying-in Hospital, and other similar institutions in this metropolis, where the utmost attention is paid to ventilation and cleanliness, and where the wards are not over-crowded with patients, I cannot hesitate to express my decided conviction, that by no means hitherto discovered can the frequent and fatal recurrence of the disease be prevented in lying-in hospitals, and that the loss of human life thereby occasioned completely defeats the objects of their benevolent founders."

Dr. Ferguson has come to nearly the same conclusion, for at page 103 of his work it is stated respecting the influence of hospital air upon the production of the disease, that "On this head we have abundant evidence of the disease being most fatal in hospitals, as these receptacles are now managed. Neither the skill, the comfort, the careful dieting, and even the assiduous nursing which are lavished on its inmates, diminish the mortality to a level with that attendant on the out-door population."

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* Med. Gaz. No. 6, Oct. 30, 1840, p. 199.

If these be facts, for whose benefit then, may I be permitted to inquire, are such institutions kept up? Certainly not for the advantage of the poor women, who have little idea on entering the wards of a lying-in hospital that they are to be plunged in an atmosphere loaded with putrid and contagious miasmata, and that they are to encounter dangers to which they would not have been exposed in their own comparatively comfortless homes.

The Statistical Society would, in my opinion, render a great service to humanity by instituting an inquiry into the mortality of lying-in hospitals.

I am, sir,
Your obedient servant,
A. B. G.

CASE OF HERNIA.

To the Editor of the Medical Gazette.

SIR,

I HAVE read with interest the remarkable case of Hernia published in your number for November 27, in the reports of the Aberdeen Infirmary; and solicit the favour of your publishing the following case, which occurred in a patient of mine, and which I think will go far towards explaining the production of the ligamentous band which proved the cause of strangulation in the case of A. R., the sailor; appearing to the writer to be altogether inexplicable. I transcribe the case from my note-book.

1832, March 7th: Lucy Darville, aged 21, thin and spare, her parents healthy and strong, has not been in good health for two or three years, but able to get about, and in good spirits generally. She had taken a walk of three miles, and before returning home was seized with pain in the side of the abdomen, about the left iliac region. It was very acute. She began to vomit, and for the first three days I know little more than that she is described by her mother to have vomited almost incessantly. Previous to this attack her bowels had been relaxed, and, attending to a verbal account of her illness, on one of the early days, an aperient draught and an astringent mixture had been sent. The latter was taken, the former omitted. No motion of bowels taking place, the vomiting continued, with tension of the abdomen. Purgatives, fomentations, bleeding locally and generally, blisters and warm baths, were all had recourse to. Sometimes the abdomen was tense, but never very tender, and for a case of enteritis, which I supposed it to be, (not being able to discover a hernial tumor), I was surprised at the little complaint of pain.

The retching having subsided one day, began again. She lived from the attack fourteen days, and died, having had no motion, except the emptying of the lower bowels by the injections.

When bled, she very soon became faint, and upon every occasion I failed to procure as much blood as I had wished, on account of the collapse that followed the opening of the vein; still it was observable that the fainting produced no good. During her illness, opiates were given, castor oil, elaterium, colocynth, gamboge, calomel, senna, saline medicines, and antispasmodics.

I could not but suspect that there was something peculiar in this illness, and the idea of an internal hernia occurred to my thoughts.

I felt an anxious desire, after the fatal termination, that the doubts which had existed, during life should be as much as possible solved by a post-mortem examination.

Appearances on examination.—A large mass of intestine presented itself in the iliac region, of very dark colour in one point, giving way to the pressure of the finger, and letting out some of its contents. Leaving, for the present, a more particular examination of this part, I turned to the upper part of the cavity, designing to trace the course of the intestinal canal from the stomach downwards; in doing which, I found the upper surface of the liver adhering so firmly to the contiguous parietes that a separation was effected with great difficulty. Half a dozen scybala, the size of a bantam's egg, were contained in the intestine, very firm in texture, some of them covered with purulent-like mucus. Reaching that part of the intestine which was in a morbid state, I was struck by a curious, and, at first, unintelligible appearance; viz. a ligature, a cross, a doubling of the canal, including all the discoloured part, to the extent of about seven or eight inches in length, having very much the appearance of a digastric muscle, the size being for a small extent that of a piece of whipcord, enlarging into a fleshy substance each way laterally. Carrying the finger along the course of this band, I discovered it to be a ring formed by an opening in the mesentery, which had produced the strangulation, and thus were accounted for the appearances and the fatal termination, without throwing any light which could have rendered the case more curable had it been understood. The included intestine contained a pint or more of yellow feculent fluid, and was so meshed with the ligature, that I conceive the mass had been thus pressed upon for some time.

Accident, or some morbid process, must have produced an aperture in the mesentery, through which the duplicature of the intestine passed; and in proceeding, and enlarging subsequently, stripped from itself the membranes of which the structure is formed. The circumferent portion of the ring, not being turned quite through, thus assumed the form of a cord.

The valuable contributor to your journal of the article alluded to, will, I think, scarcely doubt that the two cases were strangulated mesenteric hernia; his own, at least, suggesting very powerfully, as is justly observed, the importance of a little hesitation as to establishing the general rule of returning a hernial sac unopened.—I am, sir,

Your obedient servant,
Nathaniel Rumsey, M.D.

Henley-on-Thames, Dec. 2, 1840.

MEDICAL GAZETTE.

Friday, December 18, 1840.

"Licet omnibus, licet etiam mihi, dignitatem *Artis Medicæ* tueri; potestas modo veniendi in publicum sit, dicendi periculum non recuso."
Cicero.

HEALTH OF THE POOR IN LARGE TOWNS.

Miss Edgeworth has observed with great truth, that one half of the world does not know how the other half lives. It is pleasant, therefore, to see that the number of those philanthropists is on the increase, who serve as interpreters between the several halves of society and explain to the lords of hill and dale, that the poor of real life are not the poor of a poem or a melodrama, and that much of what appears tolerable in their state is a gilded fallacy. Mr. Slaney, on whose speech we commented in our last volume[*], belongs to this noble class, and endeavours to awaken the slumbering rich to a consideration of the neglected poor. He has lately published another pamphlet on the same subject, which is now lying before us[†]. Mr. Slaney is perfectly aware of the difficulty of the task which he has undertaken. The busy and the politic look at every thing through coloured glasses; they

> "narrow their mind,
> And to party give up what was meant for mankind."

So that even if they can tear themselves awhile from Parliamentary tactics, or the absorbing interests of the Bank parlour, *cœlum non animum mutant*, they change the scene of contest, but not the passions which animated it.

On the other hand, the hereditary possessors of wealth are loath to look at the subject at all. One man wears blue spectacles, and another shuts his eyes; query—which of the two is most likely to see things of their real colour? These opulent and powerful classes, says Mr. Slaney, are usually generous, and liberally open their purses to known cases of misfortune. But "an attempt to show them that the state of things is not so bright or safe as they have always deemed it, is considered almost as an injury; their passions and prejudices, their hopes and wishes, lay [lie] all the other way, and how few are resolute enough to be convinced in spite of all these!"

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[*] *Art.* Physical Condition of the Working Classes, Med. Gaz. April 10, 1840.

[†] Reports of the House of Commons on the Education (1838), and on the Health (1840), of the poorer classes in large towns; with some suggestions for improvement, by Robert A. Slaney, Esq., M.P., Chairman of both Committees.

Tell them, in fact, of the Rookery, and its lodgers; of the human sties filled with beings little above the condition of the beasts; of the satire on the rulers of the world, more bitter than Juvenal ever wrote, implied in the thronged cellars of Manchester, and the depopulating fevers of Glasgow — and they will tell you, that you are a *mauvais sujet*, and ask whether you have signed the Five Points!

Many of them, indeed, think that misery means the elegant distress of a romance; the word immediately recalls to their imagination a merchant forced to lay down his carriage, and retire to a cottage *orné* on the banks of the Wye; but not a room in an Edinburgh wynd, and its occupier living on three meals a week. Unscared by these misapprehensions, Mr. Slaney calls every ones attention to the important question—shall we remedy the evil while it is yet time, or shall we await an "increase of crime, disease, and discontent, and outbreaks from time to time, more and more difficult to suppress?"

The two reports which Mr. Slaney has reprinted in his pamphlet show that during the last forty years the rural population of England has increased about 40 per cent., while that of many great towns has increased from 80 to 120 per cent.; and that in these towns "no adequate provision is made for the proper education of the children, no due regulations are enforced for the health and comfort of the poorer classes, and no sufficient means placed within their reach to enable them to provide against the trials that beset them!"

The first remedy suggested is a good practical education based on religious principles. But, adds Mr. Slaney, education is not confined to schools, and the filthy wretched homes of many of the indigent destroy the good effect of the instructions received without.

Habitations damp, dirty, and unventilated, where the first elements of health and comfort are wanting, and where gloomy discontent alternates with unwholesome exhilaration, are not schools of virtue.

It is not in the squalid abodes of indigence that content and industry are to be learned, or that the stripling is formed into the citizen. Despair increases the evils by which it was produced; and destitution is naturally allied to that *shiftlessness*, of which Cobbett says that it is an evil little short of the loss of eyes or of limbs[*]. It is to want in this extreme that we may too often apply the saying of the poet:

> "Credi mihi, miseros prudentia prima reliquit;
> Et sensus cum re consiliumque fugit."

The first thing, therefore, is to improve these miserable homes; they are *incompatible*, so to speak, with the lessons learned at school.

A check is wanted on those ignorant or avaricious builders who run up rows of houses in the worst manner, and in the worst situations. Good drainage and ventilation should be compulsory, and the legislature should interpose between those who are actuated only by the thirst for gold, and their unhappy victims. They should be taught that to stifle their humble fellow-citizens in turn-again alleys is not among the legitimate applications of the right to do what they will with their own[*].

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[*] Cottage Economy, sec. 166.

[†] To teach this benevolent lesson a bill "For improving the Dwellings of the Working Classes." was brought in and printed 17th July, 1840. "It is applicable only to houses under £30 per annum. Its principal provisions are.—

1. To forbid the building in towns of a certain population of cellar dwellings, unless with an open area adjoining.

2. Houses not to be built in courts and alleys without a thoroughfare at each end, feet wide.

3. Houses not to be built back to back, or without a clear space of yards between.

4. Opposite rows of houses to have a certain space between.

5. Houses built after the Act, without drains, &c., not to be occupied.

6. Housewardens to be appointed by rate-payers, vestries, or guardians of poor, to enforce these provisions."—Slaney, p. 7. Note.

A drainage Act, the establishment of Boards of Health, and a general Act to facilitate and enforce local improvements, are also recommended by the committee. The expense of these ameliorations will, of course, be objected by some economists; but where the results to be attained are so great, and comfort as well as health are the reward of the outlay, we think this objection light as air, and scarcely worth a formal refutation.

Mr. Slaney, indeed, hopes that the cost will be repaid by the improvement in the character of the people, and consequent saving of sums now uselessly or hurtfully squandered. He supposes, for example, that "the outlay in drunkenness and the use of spirituous liquors injurious to health (after every allowance for reasonable conviviality) is above fifteen millions per annum throughout the kingdom.

This would be a large fund to draw upon; but we doubt whether Mr. Slaney has made sufficient allowance for conviviality, or even for the sober consumption of ale and beer in shop and market, farm and mansion. He says, that according to the returns to Parliament, 30 millions of gallons of spirits are annually consumed, which are retailed at about 10s. per gallon, and 450 millions of gallons of ale and beer, which are valued at between 20 and 30 millions sterling; so that the two together are worth about £40,000,000; and, therefore, he considers ⅜ of this as superfluous.

We shall not dwell much on the report of the committee on health; partly because their recommendations are touched upon in Mr. Slaney's preliminary remarks; and partly, because most of their facts and suggestions, though new in the *salons dorés* of the opulent, are sufficiently familiar to medical practitioners. Yet as each great town seems to have some special variety of unhealthy arrangement, we may cite Dr. Duncan's account of the courts in Liverpool: "Very few have an entrance wider than four feet, and that is by an archway built over it; the width is from nine to fifteen feet between the rows; there is one only six feet. The backs of the houses in one court are built against the backs of houses in another court; at the further end there is generally an ash-pit between two privies; they are in the most abominable state of filth."

The committee mention the injurious custom of burying the dead in the midst of populous cities; the importance of an ample supply of water; the necessity of public walks near great towns; an inspection of the lower lodging-houses; and public bathing places.

Practitioners of physic can hardly do a greater service to the community than by pressing these topics on the attention of the opulent. Those who have been accustomed to think of Glasgow only as the emporium of Scotland, the residence of princely merchants, must learn the painful truth "that penury, dirt, misery, drunkenness, disease, and crime, culminate in Glasgow to a pitch unparalleled in Great Britain*;" and those who speak of London only as the metropolis of the world, should be taught to know, at least by description, the topography of Bethnal Green.

GANNAL PROCESS OF EMBALMING.

A LARGE number of the members of the profession, and others, assembled on Wednesday in the Theatre of Anatomy, Little Windmill Street, to witness the opening of a body which had been preserved for upwards of two years by a new method of embalming, termed, the *Gannal Process*. The discovery was made fourteen years ago by M. Gannal, an eminent French chemist. He has since that period continued to direct much of his attention to the subject; and the process, as now improved by him, while it is ready for application at any time, and at a moderate expense, is said to "preserve the body for an unlimited period from incipient decay, without alteration in its appearance, or the presence of the slightest effluvia:" nay, it has the effect of arresting putrescency after it has actually commenced. Mr. Gregory Smith, before proceeding to uncover and open it, stated that he had been present, though not taking any actual part, at the embalming of the body, on the 9th of November, 1838, by M. Gannal himself, who visited this country for that purpose. It has since been under Mr. Smith's charge, and exposed to various degrees of temperature at different times. The man died on the 5th of the month, and signs of decomposition had begun to manifest themselves on the abdomen and lower part of the neck, when, on the 9th, M. Gannal threw into the left carotid, with a common injection syringe, a large quantity of acetate of alumina. In about half an hour after, the greenish appearance on the abdomen neck and belly became less evident, and within three days was no longer observable. The subject now presented a waxy, and rather full but firm appearance. In this condition it was left until the 14th, when every part of it, except the face and hands, was invested first with a covering of linen, then a coating of lead, and over that was put a thick envelopment of bandages, not less than 200 yards altogether having been used by M. Gannal for this purpose.

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* Slaney, page 46.

Between the folds of bandage were sprinkled some aromatics, and no other odour than that which they emitted was perceptible during the examination. Over the face and hands, which were left uncovered by the bandages, was a thin coating of wax.

When these coverings had been successively removed, the body presented generally the waxy appearance described above, and had rather a dark tinge; but the arms, one especially, which had become partially dry, were nearly black, as were also both feet, and part of the right leg, where a sore had existed at the time of death.

The abdominal muscles were now divided, and they seemed to be easily cut. These having been reverted, and the abdominal and thoracic cavities laid open, the different viscera presented a dark appearance, but seemed perfectly fresh; thus the intestines were entire, and could be separated with ease, while the broad ligament of the liver was natural to the feel. The state of the muscles was inspected in various parts of the body, and though they had generally speaking become dark-coloured, yet in some parts they retained their natural tinge. The brain too was examined. Here the dura mater was at one part dark and partially decayed, and the substance of the brain generally was softened, though the medulla oblongata was of natural consistence. The softening might arise from the state of the brain before death, seeing that the man is reported to have died of epilepsy.

We may observe that the knife used in making the examination did not seem to be in the least corroded, as it is apt to become after cutting a body preserved by the oxymuriate of mercury.

There were in the theatre, besides the body of a child, various specimens of animals preserved by this method, which had not been protected against changes of temperature, and yet appeared to be perfectly fresh. Among these were a dog, a cat, a rabbit, and several birds. In all the viscera had been left, nor does M. Gannal in any case deem it necessary, before using the injection, even to clear out from the intestines any fæculent matter which may be present in them.

In 1835 the Academy of Sciences of Paris, and in 1837 the Academy of Medicine, having fully investigated the subject, expressed in strong terms their sense of the value and importance of the discovery. So also did the members of the Institute; and the process is now adopted in many of the greatest anatomical schools in France, besides being much used by private individuals for embalming persons deceased. It has been suggested that the discovery might be advantageously employed in cases of adventitious death—and one case is already on record where it had led to the detection of a murder.

M. Gannal has obtained a patent in France, and Mr. George Smith, of John Street, Oxford Street, has taken out an English patent for the invention.

PRESENTATION OF PLATE TO DR. FORBES.

Dr. Forbes is known to our readers as the translator of Laennec, and the able editor of a Quarterly Review. At Chichester he has merited the additional fame of a skilful physician, and a good fellow-citizen.

On Tuesday, the 8th of December, as we learn from the Brighton Herald, a farewell dinner was given to Dr. Forbes, at the Dolphin Hotel, Chichester, at which plate to the value of nearly £300 was presented to him. The chair was filled by William Charles Newland, Esq., supported by Admiral Thompson, and about sixty other gentlemen. After the Chairman had presented the plate on behalf of himself and the other subscribers, Dr. Forbes thanked him for this mark of their esteem in a very agreeable and manly strain. He neither assumed to himself all the praise implied in so distinguished a gift, nor did he wholly reject it; but was rather inspired by the genial consciousness that so great a chorus of approbation could not be founded upon error.

The plate was presented "in testimony of his character, and in gratitude for his zealous and indefatigable exertions in behalf of the Chichester Infirmary."

ROYAL MEDICAL AND CHIRURGICAL SOCIETY.

Dec. 8, 1840.

Sir B. C. Brodie, Bart., in the Chair.

On the Structure of the Entozoa belonging to the Genus Cysticercus. By George Gulliver, F.R.S. F.Z.S. Assistant Surgeon to the Royal Regiment of Horse Guards. Communicated by Dr. Clendinning.

After observing the great importance of the cystworm as one of the very few parasites that infest the muscular fibre of man as well as that of animals used by him as food, the author refers to a notice which he gave to the Zoological Society in March last, "On certain oval corpuscles obtained from the cysticercus;" adding that the object of the present memoir is to explain the nature, situation, and extent of these bodies, and to give some illustrations of other points in the anatomy of the worm, which he believes have hitherto either been imperfectly elucidated or altogether neglected, since nothing has yet been added to the observations published by Dr. Knox, in 1836, which are more accurate than the compilations which have since appeared.

Mr. Gulliver then adduces many reasons drawn from the structure, composition, and situation of the ovæ corpuscles, to induce the belief that they are in fact the ova of the entozoon. They are said to occupy the neck or true body of the worm, while the bladder-like part or candal vesicle is destitute of them, and throughout pervaded by spherules infinitely more minute in size, and totally different in other characters: for the ova have a granular interior with a calcareous shell, while the spherules of the vesicle are not affected by acids.

In a description of the configuration and arrangement of the hooklets, the author shews that the two sets, though alike in form, are quite distinct in size, and arranged alternately: and that each claw has a blunt lateral process, which may be mistaken for a distinct body or ovum; and he remarks incidentally that, although Rudolphi appreciated the importance of the tentacles in the arrangement of some of the entozoa, an accurate account of the structure and disposition of these parts has never been given, though necessary to a discrimination of many genera and species of the cystoid order, which have not yet been clearly characterized.

The memoir is illustrated by several drawings, executed by Mr. Liddall, exhibiting the struture of the ova, as well as that of the tentacles,—body, caudal vesicle, and cyst of the parasites.

Observations on Chorea. By John Webster, M.D. Consulting Physician to the St. George's and St. James's Dispensary.

St. Vitus's dance was little known to the ancients, although Pliny and Galen are thought to have alluded to it; and it is still doubtful if the epidemic which prevailed so extensively in Germany in the 14th century was chorea, or the disease called Raphania. The most accurate description of St. Vitus's dance is that given by Sydenham and Dr. Hamilton. This complaint prevails among the poor, the badly fed and manufacturing town population of England; the higher and middle ranks being comparatively more free from its attacks. Girls are more subject to it than boys, and of 21 cases treated by Dr. Webster 16 were in females, and but 5 in boys, or nearly 3 to 1.

Even when fatal, a much larger proportion of girls become victims to chorea than boys, as proved by the valuable report of the Registrar-General for 1840, which states that 20 females died of the disease, and only 4 boys, or 5 to 1, being the highest average in regard to the two sexes which the report contains. A very large number of the fatal cases occurred in the central and manufacturing districts of England, including the metropolis, and very few deaths in the more agricultural parts, whilst the northern counties, the purely agricultural and maritime districts, exhibited not a single fatal casualty, excepting one at Lancashire. The symptoms of chorea are so well known that no description of them was considered necessary by the author; and the treatment he found most successful consisted in active purging by aloes, jalap, and similar remedies, varying them according to circumstances; next the administration of tonics, such as Peruvian bark, ammonia, and camphor; and lastly the proper regulation of the ingesta, which was always found of the greatest importance, for if that point was neglected more purging was required, and the case thereby protracted. When the head appeared affected, leeches and blisters were useful; and if the uterine action also became implicated in the disease, then leeches and blisters to the loins, with the hip-bath, and that added to the purgative remedies, were found to be of essential service. Of the 21 cases treated by Dr. Webster, only 1 proved to be fatal; but as in this instance the patient died of a fever which supervened to the St. Vitus's dance, and as the body besides was not examined, the author, from personal observation, could not bring forward any new fact regarding the etiology of chorea, although he expressed his opinion to coincide with those authors who consider the spinal cord and its membranes to be the primary seat of this singular disease.

No discussion followed the reading of Mr. Gulliver's paper.

At the conclusion of that by Dr. Webster, Dr. Wilks said that he had been led, by considerations founded on both physiology and pathology, to the conclusion, that chorea depended essentially on an affection of the cerebellum. In support of this, he alluded to the experiments of M. Magendie, which showed that certain injuries of the cerebellum, in animals, were followed by a loss of the directing power naturally possessed by the will over the voluntary muscles; and, in particular, to an experiment by that physiologist, which he had himself seen him accidentally perform, in which one of the crura cerebelli being divided the rabbit immediately lost all voluntary influence over its muscles, and began to rotate its body. He observed also that some cases of chorea which he had seen appeared highly favourable to this view. In one that had occurred at St. George's Hospital, a girl had been attacked with chorea soon after having fallen on the back of her head; all the usual remedies were employed without success; but the disease was ultimately removed by the repeated application of leeches and counter-irritation to the region of the cerebellum. Since that time Dr. W. had constantly treated chorea on the principles founded on the opinion he had been thus led to form, and with pretty constantly successful results.

Dr. Webster was aware that various authors had ascribed different parts of the nervous system, as the essential seats of the disease, marked by the convulsions of chorea. He regretted that he had not been able to perform any inspections of those who had died of the disease, and was, therefore, not in a position to form a decided opinion.

Dr. Addison having asked what Dr. Wilks considered to be the exact nature of the affection of the cerebellum, which gave rise to chorea, Dr. W. said "it might be an affection marked by no palpable lesion; he believed, also, many different affections of the cerebellum might give rise to chorea, in the same manner as Dr. Abercrombie had shown that there were many different morbid conditions of the brain which were marked by the same symptoms; as for example in apoplexy, in which it was often observed that the same symptoms occurred in cases where blood was effused, in others where serum only was effused, and in others where no effusion at all had taken place. In the case to which he had particularly alluded, and which occurred after a fall, Dr. W. imagined that a condition of inflammation of the cerebellum must have existed.

Dr. Addison then said that the idea of the cerebellum being the essential seat of the disease in chorea seemed to him entirely disproved by the fact that in the cases which proved fatal that organ was not found appreciably altered, while in the cases where the cerebellum was actually diseased, no choreal symptoms occurred. He had never seen a case of fatal chorea in which the cerebellum appeared diseased; but he had seen many where from disease of the internal ear, or from other circumstances, acute inflammation had occurred in and about the cerebellum, leading to thickening of its membranes, effusion of albuminous matter, and even suppuration, and the formation of abscess—in which, in short, every circumstance that could produce irritation of the cerebellum had existed—and yet in none of these had any chorea occurred. He might apply the same observations with regard to the spinal cord, which was assumed to be the seat of the disease. He had had the misfortune to be able to examine several cases of chorea that had terminated fatally in his own and his colleague's practice; but, after the most careful investigation, the only thing that was found remarkable was, the total absence of any appreciable lesion in the nervous centres. On the other hand, cases constantly occurred in which the spinal cord was importantly] diseased, but in which no chorea existed; and he believed he might appeal to the experience of surgeons, that injuries of the spinal cord are seldom or ever followed by symptoms of this kind. He believed it would be found that in this disease, and all those related to it, which are marked by sposmodic action of the muscles, the seat of disease, whether such as to produce appreciable lesion or not, was not so much in the medullary matter of the cord as in its membranes. So convinced was he of this, that it had become with him a matter of diagnosis, and, whenever he saw a case presenting, with other signs of disease within the vertebral column, convulsive action of the muscles, he at once considered the affection to be seated in the membranes of the cord, and not in its substance; whereas, if there existed paralysis of the muscles, he always conceived the nervous substance, and not the membranes, to be diseased. He thought attention had been given too exclusively to the nervous substance: to the neglect of the remarkable structure of the pia mater, and the other membranes which could not but exercise an important influence in the functions of the nervous system.

In confirmation of this opinion of Dr. Addison respecting the influence of diseases of the membranes, Mr. Davis related two cases, one of choreal affection, the other of epilepsy, both of which had occurred in consequence of local injury of the head, and both of which had been benefited only by the application of remedies to the part injured,—means which had produced complete cure in both.

Dr. Copland confirmed the author's statement as to the frequency of chorea among the poor of towns, by the fact that in the Manchester Infirmary there were seldom less than from twenty to thirty patients suffering from this disease. He wished to state his claims to the original idea of this affection being dependent on the spinal cord; as early as 1832 he had published his belief that it was the result of irritation, caused by disorder of the digestive system, and propagated through the ganglionic and vagus nerves to the spinal cord, from which it was again *reflected* to the nerves of the voluntary muscles. It was not till the following year that the same idea was brought before the Society by others.

The President said his observations had not led him to believe that chorea had any particular locality in the nervous system. In one case that had terminated fatally, he had found a cyst as large as a hazel-nut attached to the pineal gland; yet he should be far from thinking that that part was the seat of disease in chorea, though, in this case, its affection was, undoubtedly, the original cause of the symptoms. In another case, the cortical substance of the brain was in a peculiar state, and quite red by the turgidity of its vessels, and no other apparent disease existed; in a third, the chorea was consequent on a prick of the finger; yet it was not probable that the part evidently diseased, in either of these cases, was the constant seat of the disease in chorea. He thought, also, it was erroneous to speak of the motions in chorea as involuntary; they seemed to him to be the results only of wrongly-directed will; the motions often commenced with such as were evidently voluntary, as picking the lips or fingers, and those gradually increased to real choreal movements. It was the same with hysterical affections of the muscles; in these cases the patient evidently willed the movements, but willed them at the wrong times, her mind not having sufficient control over her will to guide it aright; and so, in hysterical paralysis, the power of the muscles was not lost, but the will was not rightly exerted over them, and the patient was paralytic rather because she would not, than because she could not move.

In illustration of the occasionally local origin of chorea, Dr. Kingston related a case, in which, after injury of the elbow in a young girl, a violent and long-continued, constant, involuntary motion, had existed in the arm.

The discussion, which was throughout carried on with unusual vivacity, was continued till beyond the usual time of adjournment.

LIVERPOOL MEDICAL INSTITUTION.

THIRD MEETING.

DR. VOSE IN THE CHAIR.

MR. LONG related the following case of tubercle in the cerebellum:—

Whilst attending a lady, in February last, I was requested to see a servant who was suffering from sick headache; she had nausea, and occasional slight vomiting; her bowels were constipated, and tongue slightly furred; a disagreeable bitter taste in the mouth; pain in the occipital region extending to the vertex, and a perfectly quiet pulse.

I ordered an aperient, which evacuated the bowels freely, and then directed small doses of blue pill to be taken at bed-time, and a mild aperient each morning. In a few days the tongue became perfectly clean and moist; the disagreeable taste had disappeared; but the vomiting and headache persisted, having still the characters of that form of headache usually denominated sick headache.

I ordered her to bed, with the intention of examining her more carefully. I found the abdomen quite soft, without the slightest degree of tenderness in the epigastric region, or elsewhere. I then inquired into the state of the uterine system: her age was forty; the catamenia were regular as to time, and healthy in quantity and quality. She informed me that for upwards of a dozen years she had, at intervals, suffered from attacks similar to that which she now experienced, and that at times the pain in her head was so severe as to confine her to bed; that these attacks frequently came on at the menstrual period, but, if they occurred prior to it, were always aggravated by it; that at first they were easily removed by a brisk aperient, but had progressively become more obstinate; and that the attack under which she was then labouring had existed a fortnight before I saw her.

She described the headaches as commencing usually during the night, or towards morning, and when very severe being always attended with vomiting, which occurred most frequently after eating, but frequently without any assignable cause; in fact, it was the obstinacy of the vomiting which drew my attention more particularly to the case; for medicines and treatment directed by this particular symptom were of no use whatever.

Taking into account the healthiness of the uterine functions, the quietness of the pulse, the natural state of the tongue, the freedom from pain or tenderness in the epigastric region, and the persistence of the vomiting and periodical headache, I felt little doubt but that these phænomena owed their origin to the cerebro-spinal system; in effect, on making pressure between the occiput and atlas she experienced an acute pain extending from this region to the vertex, and immediately vomited.

I directed leeches to be applied below the occiput; they produced marked relief. I repeated them, and the headache and vomiting ceased; she slept soundly during the night, which she had not done for weeks before, and was able to go about the house as usual. At this period I did not remark any peculiarity in her gait, except that she moved about cautiously, as if afraid of shaking her head.

In a few days the symptoms began to return. I directed a blister to be applied to the same region. This checked them at once; she improved, was able to go out, and stated that although she did not feel quite well, yet that she was in her usual state of health. In this state she continued, and at my urgent solicitation applied a second blister, but could not be prevailed upon (being relieved from her distressing symptoms) to persist in the treatment I had laid down for her.

Towards the end of March she went into the country, and consulted a practitioner there, who was of opinion that all her ailments resulted from a "change of life," and that the leeches and blisters had been injurious. He recommended some medicines, which she took; the effect, however, not bearing out the opinion she had received, but her headache and vomiting recurring, she returned to Liverpool, and I was requested to see her in consultation with a physician of this town. I found her much worse. The headache and vomiting were as bad as at first, with occasional hiccup, and now and then slight difficulty of deglutition. In attempting to walk she staggered like a drunken person, and supported herself by holding a chair, or placing one hand against the wall. In sitting down she was some time before she could steady herself. At times partial convulsive movements occurred. These were peculiar; the muscles at the back of the neck first became rigid, the head being drawn backwards, and then twisted to the right side, and then convulsive movements of the muscles of the face on the same side commenced. These convulsive movements were sometimes accompanied by a tremor of the whole body. The menstrual secretion was still regular and healthy; the tongue quite clean, but tremulous; the bowels easily moved by medicine; the pulse slow, but otherwise natural; the temperature of the body below the natural standard.

The plan of treatment adopted included slight irritation of the nape of the neck by means of lunar caustic, and she continued under our care until the middle of May, the convulsive twitchings increasing in severity, the headache, unsteadiness in walking, and vomiting persisting. It is worthy of remark that the convulsive twitchings and accompanying phenomena had for the last week or two assumed an intermittent character, so that she had what she called a good day and a bad day; the good day was only so, however, when compared with her bad day. This always commenced with headache during the night, then vomiting, then convulsive twitchings of the neck and right side of the face, and then a tremor of the whole body. During her bad day she was confined to bed; during her good day she sat up or walked about in the unsteady manner I have described. She was once seen by one of the family, when attempting to walk in the garden, to roll completely over. Her sister also informed me, and was corroborated in her statement by her fellow-servants, that she had frequently a tendency to fall forwards, and would have done so had not she or they caught her.

She went to reside with her sister in town from this period until the evening of the 28th May (about a week). I heard nothing of her. On the evening in question I was sent for, and found her seated in a chair, dead. She appeared to be asleep, so that I had some difficulty in persuading her friends that she was actually dead. Her sister informed me that during the preceding week she had been rather worse than usual; that the convulsive twitchings had extended to both arms, both being equally affected; that, on the morning of the day on which she died, she felt better than usual, but expressed a strong conviction that she should not recover. In the evening her headache commenced, the convulsive twitchings succeeded, she complained of sickness, a basin was held before her, she opened her mouth as if to vomit, and expired. She had passed her usual catamenial period eight days.

I examined the body eighteen hours after death, and was assisted by Mr. Ellison. There were no external signs of scrofula. Nothing unusual was found in the membranes of the brain, or in its substance. A considerable quantity of colourless fluid escaped from the lateral ventricles; the arachnoid investment of both choroid plexuses was considerably distended by fluid underneath, presenting a hydatid-like appearance. The pia mater investing the cerebellum was much more minutely injected than could be accounted for by the effects of mere gravitation, particularly as the pia mater investing the posterior lobes of the brain was not similarly injected. The external configuration of the cerebellum was natural. Its whole substance and surface were rather softer than usual. The inferior vermiform process was occupied by a tubercle the size of a common marble, of a somewhat irregular figure, extending about a quarter of an inch into the right lobe. The nervous tissue immediately surrounding it was softer than the rest of the cerebellum. The superior surface of the right restiform body, just where it plunges into the cerebellum, was much softer than the left. The medulla oblongata, the pons varolii, and the nerves, arising from them were perfectly healthy. We were not permitted to examine into the state of the spinal cord, or any other part of the body. The tubercle was hard, and when cut into presented granules of concrete pus, and appeared to me to be contained in a fine cyst.

Summary of the symptoms.—Senses unaffected; intellectual faculties entire, except that the memory seemed at times impaired; catamenia regular, and no derangement of sexual functions; periodical headache extending from the occiput to the vertex, of twelve years' standing.

Pain on pressing the occipital region; vomiting without epigastric tenderness; clean but tremulous tongue; occasionally slight difficulty of deglutition; rigidity of the muscles of the neck, with convulsive twitchings drawing the head to the right side; twitchings of the muscles of the right side of the face, extending subsequently to both arms; want of command over the lower limbs, with tendency to fall forwards.

Lesions found after death: tubercle in the inferior vermiform process of the cerebellum, extending into the right lobe; softening of the cerebellum, particularly around the tubercle; injection of the pia mater investing the cerebellum; softening of the right restiform body; fluid in the lateral ventricles of the brain.

1. The points worthy of notice are the rarity of tubercles of the cerebellum. Thus Louis and W. Lombard found tubercles in this organ twice only in 450 tubercular adults.

2. The length of time these productions may exist without giving rise to serious symptoms: a case is mentioned by Dr. Abercrombie in which a tubercle of the cerebellum evidently dated its commencement at least five years prior to death.

3. The intermittent phenomena caused or induced by a permanent change of structure, or new production, depending probably upon the intermittence of the lesions which exist around it; and, consequently, the existence of a new production may give rise to no phenomena, so long as the surrounding tissues are unaffected by it, and remain in a state of integrity.

4. The non-appearance of the menstrual discharge at its usual period—eight days prior to death; the aggravation and extension of the symptoms during this period; the existence of a considerable quantity of serum in the lateral ventricles: though a question may arise whether death was caused by the vessels relieving themselves by this effusion, or whether it was produced by syncope.

5. The softening of the right restiform body, and the remark of Rolando, "That injury of one of the restiform bodies produced convulsions, with curving of the body of the animal to the injured side;" there being in this particular a coincidence.

6. The want of accordance between the case I have related and the case related by Mr. Serres, which induced him to place the seat of sexual impulse in the middle portion of the cerebellum (on this point I was particularly anxious, and purposely delayed its consideration for this place). Eighteen years ago she had a son, who is now alive; since that period she has had no intimate male acquaintance, although she has not shunned their society; and during the whole of my attendance I did not perceive the least symptom of any amorous propensity, and her sister assured me that since her mishap she is certain she had none.

I may mention here that Mr. Montault has related a case of a tubercle an inch in size occupying the whole vertical thickness of the middle portion of the cerebellum. The individual was paraplegic, and addicted to women; but in this case there existed other disease of the brain, and the lumbar vertebræ were diseased; whereas M. Guerard mentions a case where a tubercle an inch and a half in size existed at the upper surface of the cerebellum, and in the middle line: the substance of the cerebellum around the tubercle to the extent of two lines was softened; the spinal cord was sound. This individual was weak, particularly in his lower limbs, and staggered in walking. It is added it would be impossible to say that there was any marked symptom referring to the genital organs. The case rather seems to favour the opinion of M. Magendie, who, it is stated in the Journal Hebdomadaire, ascertained, by direct experiment, that when an injury was inflicted upon the middle portion of the cerebellum the animal remained undecided in its movements; or considering the cerebellum as a whole, without reference to its middle portion, it seems to favour the opinion of M. Flourens and M. Bouillaud, that in it resides the faculty of combination of the movements; and coincides with the cases related by Lallemand, Gall, and Guerard, the individual staggering in walking, and having a tendency to fall forwards.

7. The accordance of the symptoms in the case I have related with the cases of disease of the cerebellum related by Andral, these being thirty-six cases of disease of various kinds, and of variable extent, and eleven cases of abscess.

Thus we find the intellectual faculties affected in 5; the senses in 6; the motor powers in 30; the tongue, in the thirty-six cases, 2; headache in 35; vomiting in 17.

With respect to derangements of the motor powers they are stated to have been various; but amongst them we find several in which paralysis affected especially the lower limbs; whilst it is noted, however, that involuntary contractions of a greater or less number of muscles is a more common phenomenon than paralysis: in a great number all the body was agitated by convulsive movements, at intervals, in other particular muscles, as those of the neck, drawing the head backwards, or to one side. He also mentions the facts stated above, that some individuals had a sort of uncertain gait, staggering like a drunken person, and having a tendency to fall forwards.

I may here mention two cases, one by Andral. Convulsive movements occurred, and always commenced by a powerful agitation of the head, which was drawn backwards as in a variety of tetanus. Some days the convulsions were confined there; but at other times became more general, and almost all the muscles of the body were affected: they augmented in frequency and intensity, extended to the respiratory muscles, and the patient died in a sort of asphyxia. An encysted abscess, the size of a pullet's egg, existed in the left lobe of the cerebellum. The second by M. Recamier. Frequent convulsive movements existed, commencing always in the muscles of the neck. In these attacks all the body was agitated, and the head drawn backwards. An encysted abscess, the size of a pullet's egg, existed in the left lobe of the cerebellum.

With respect to the headache, it is remarked by Andral that it was generally seated in the occipital region; was mostly intense, and in several cases assumed a periodical or intermittent character; and that when vomiting occurred it was in all sympathetic, and one of the predominant symptoms, not occurring as a simple complication, but being certainly connected with the disease of the cerebellum.

Dr. Abercrombie remarks, that where periodical headaches and paroxysms of vomiting occur in indurations of the nervous centres, the prominent morbid appearances are found in the cerebellum, and that the uneasiness in the head is more permanent and fixed than we should expect to find in a dyspeptic case, and the uneasiness is increased by causes which would probably be beneficial in dyspeptic headache; such as activity and cheerful company.

He also notices that in cases of paraplegia tumors and indurations often exist in the cerebellum or tuber annulare; but that the cases on this point are unsatisfactory, in consequence of attention not having been paid to the spinal cord.

Diseases of the central organs of the nervous system are involved in great obscurity, and must be so so long as we are ignorant of the functions of their separate parts, so long as we have a difficulty in ascertaining the precise amount of a lesion, or of conveying to another a precise idea of it when ascertained; for a degree more or less of an injury may make a vast difference in the amount or kind of symptoms produced; or a disorganization or change of structure in a part endowed with a special function may, according to its extent or locality in that organ, in one case alter, in another, weaken and destroy its functions, or call into action another part with which it may have a direct or secret influence. I think, however, that sufficient may be gathered from the above remarks to enable us, in certain cases, if not to diagnosticate diseases of the cerebellum, at least to enable us to state with some degree of probability that disease of this organ does exist.

REPORT

BY THE

ROYAL COLLEGE OF SURGEONS OF EDINBURGH,

On the proposals of Messrs. Warburton and Hawes for the amendment of the laws relating to the medical profession in Great Britain and Ireland.

Adopted unanimously, 12th December, 1840.

The Royal College of Surgeons of Edinburgh having been unsuccessful in a series of attempts, during a period of more than twenty years, to obtain from Parliament a legislative remedy, founded upon broad and general grounds of public advantage, for the inequalities of education and of privilege which affect the medical profession in this country, rejoice to find that there is at length a prospect of this subject being brought fairly under the consideration of the legislature, with such an amount of support from the profession and from the public as to insure the attainment of some measure of practical good.

The progressive improvement in the courses of study prescribed, and in the minuteness and accuracy of the examinations instituted, by the different Boards to which the power of licensing is at present committed—an improvement in which the College have at all times taken a very prominent and leading part—has hitherto constituted the chief security to the public for the possession of a well-educated body of medical practitioners, and for the advancement of medical science itself. Under this system, there has risen up in Great Britain and Ireland a large body of highly instructed medical practitioners, who feel aggrieved by the disabilities and inequalities of privilege to which they are subjected; who are conscious that their importance in the community entitles them to a remedy; and who are, with good reason, determined to urge their claim to that remedy, as being due, not merely to their own interests, but to those of the public at large.

Some years ago, such a degree of improvement in the system of granting medical qualifications by means of the existing incorporated bodies, as would have secured to the holders of those qualifications equal education and equal privileges throughout the United Kingdom, was all that the most sanguine medical reformers desired to effect. But an anxiety has recently been manifested, and very loudly and generally expressed, to accomplish those and similar objects by means of a general representation of the medical practitioners of this country. While the College have not hitherto given any encouragement to this project, they do not view it with any particular apprehension; and seeing how much importance is attached to it by professional men of the highest character, they are willing to hope that a representative body, chosen by the practitioners of the healing art, if properly arranged, and accompanied by effectual checks for securing the community against the influence of partial views and interests, might work beneficially both for the profession and the public.

It is a gratifying proof of the just appreciation of the importance of this subject by those who are not of the medical profession, that two members of the House of Commons, Mr. Warburton and Mr. Hawes, have each promulgated a plan of medical reform, and that their several proposals evince an enlightened acquaintance with the nature of the evils to be remedied, which could only have been acquired by a great sacrifice of time and labour. In both of these proposals are contained many valuable suggestions; and in both, as might have been expected, there are matters which seem to the College to require reconsideration.

The subject of medical legislation may be considered, as it respects the interests of the public, those of medical practitioners, and those of medical incorporations.

I. The interests of the public call for the following provisions:—

1. That all persons who receive a legal recognition as practitioners of medicine, should be previously subjected to a uniform and efficient system of education and examination.

2. That the public should have an opportunity, by means of a system of registration, of distinguishing those who have received this public recognition from those who have not.

3. That the public should be permitted to select their medical attendants, from among the number of those who are thus recognized, unembarrassed by any exclusive privileges of particular classes of medical practitioners.

II. When the subject is considered with a more immediate reference to the interests of medical practitioners, all of these conclusions appear to be confirmed. The following expressions of Mr. Warburton on this subject appear to the College to be just and apposite:—

"The legitimate means of discouraging unqualified practice appear to be the following:—

"1. Uniformity of system in respect of medical instruction and examinations, and uniformity of professional privileges founded thereon; so that the public may see and know that when a man has passed his examination, the state considers him a fit person to practise *ubicunque gentium*.

"2. Registration of all who practise,

distinguishing the qualified from the unqualified, that the public may be informed by the state what practitioners are to be confided in.

3. "Employment by the state, and by all public institutions, of none but the qualified.

4. "Punishment, as for fraud, of all persons who practise, assuming a professional title which does not belong to them." (See Mr. W.'s Letter to Dr. Maunsell, in the Dublin Medical Press, No. XCVI., p. 300.)

Besides these four methods of protecting the qualified practitioner, and discouraging the unqualified, another has been much agitated by medical reformers, viz. the establishment of a system of penalties against the latter for practising medicine without a license. In regard to this, Mr. Warburton says in another letter (Dublin Medical Press, No. XCVI., p. 301), "I have no faith in the efficacy of heavy penalties, when sought to be enforced against obscure people." This seems a sound opinion: it is conformable to the actual practice of this College, which has for a long period desisted from prosecuting those who have infringed its exclusive privileges, and has had no cause to regret its abstinence from this practice; there being no town in which ignorant pretenders to medical skill are less numerous and less respected than in Edinburgh. There is much reason to fear that prosecutions will be found to fail in accomplishing the object proposed. They may render the unqualified more cautious in practising on public credulity, without making them less successful; they may even impart to their pretensions a degree of fame and of importance, which those pretensions would never acquire without such assistance; and they may have an unfavourable impression on the character of the qualified, who will be more likely to stand well with the unprofessional part of the public, if they have the magnanimity to despise this species of artificial protection, and to rest their claims to public confidence solely upon their professional talents and qualifications. There cannot, of course, be any objection to their endeavouring to strengthen these claims by acquiring those honorary distinctions which universities and other public bodies are in the practice of conferring.

III. But the subject of a reform in the laws affecting the profession must also be considered in its bearings on the interests of the existing Medical Incorporations. These incorporations have been objected to on the following grounds: 1. Their exclusive rights of examining and licensing the practitioners in certain districts, which have the effect of disqualifying from practising, within those limits, well educated men who have obtained a qualification elsewhere; 2. The disparity in the conditions required of those who are admitted to examination by the different boards and Universities, both as regards the length of the period of study, and as regards the number of branches of instruction prescribed by their several curricula; and, 3. The very different degrees of rigour with which the examinations for licenses or degrees are conducted by the different Boards. The College have no hesitation in expressing an opinion which they have long entertained, and often promulgated, that the exclusive rights and restrictions referred to under the first of these heads, are altogether unsuited to the present state of the profession. The only justification of them which has ever been proposed is based upon the disparities specified under the second and third heads. Great irregularities in regard to education and examination undoubtedly exist, and constitute the plea for the obnoxious inequalities of privilege; and it will certainly be expected of medical reformers that when they propose to abolish this last species of inequality, they will, at the same time, be prepared to admit the necessity of taking effectual means for the abolition of the two former also. About inequality of education, no great difficulty would now be experienced. An imperative system, sanctioned by some public authority, could easily be introduced and made applicable to every part of the United Kingdom. The Colleges of Surgeons of London, Edinburgh, and Dublin, in a conference which they held in London by delegates, during the discussion in Parliament of the Irish Charities' Bill, came to an understanding as to what should constitute the *minimum* of study, without evidence of having gone through which no one should be admitted to examination by any board. The joint resolutions of these bodies were afterwards acceded to by the Faculty of Physicians and Surgeons of Glasgow. A similar scheme was resolved upon by the University of Edinburgh, and the Colleges of Physicians and Surgeons of Edinburgh. By a comparison of these plans, and of those of other licensing boards, a uniform system of education could without any serious difficulty be adjusted.

But uniformity in the degree of rigour and minuteness in conducting examinations is by no means so easy of attainment, and indeed, nothing better than an approximation to such uniformity can be expected. The object is undoubtedly of the greatest importance to the interests of the public, and no scheme of professional reform would deserve the name, if it did not attempt to secure as great a degree of uniformity in examination as can be attained. There are only three methods which occur to the College by which the object may be accomplished. The *first* of these is the plan proposed by Mr.

Warburton, and consists in intrusting the business of examining and conferring professional qualifications to a single board, appointed by a medical council in each of the three divisions of the Kingdom. It is further provided, that the examinations shall be conducted according to a set of bye-laws enacted by a Medical Senate for the whole Kingdom, and shall be under the immediate inspection of the Councils, and of the Senate. The College cannot but feel that the rights of the existing Boards to grant licenses applicable to their respective bounds, though proposed to be retained under this scheme, would be virtually abrogated, since no one would waste his means in acquiring the minor privilege, when the more extensive one applicable to the whole of the British dominions was made accessible. This proposal, therefore, if carried into effect, would altogether supersede, and indeed destroy, a number of establishments created at great cost to the public and the profession, and containing within them most if not all of the elements requisite for the successful performance of the functions hitherto intrusted to them; establishments, of some of which it may safely be averred, that they have discharged their functions with the greatest liberality and disinterestedness. To destroy the powers of these boards, and thus to cut off from the incorporations appointing them those funds which are at present applied to purposes of great public utility, would be a gratuitous injury to the public interests, and the attempt would, in all probability, encounter such opposition as would be fatal to it in Parliament. The College readily acknowledge that if the laudabble object which Mr. Warburton seeks to accomplish could only be attained by means of this proposal, the privileges of the incorporations, conferred solely for the public weal, could never be permitted to stand in the way of it. But the College are of opinion that either of the other two methods yet to be commented on would be preferable as a means to the proposed end.

The second plan for assimilating examinations is that of Mr. Hawes, which, like the former, provides a senate for the whole kingdom, with power to make by-laws for regulating education and examinations; and a medical council in each of the three divisions of the kingdom, with power to select a board of examiners for carrying these laws into effect under the superintendence of the council and senate. Thus far there is a coincidence between the two plans. But there is this very important difference, that Mr. Hawes' plan provides that the bye-laws "shall not be good and valid unless they require that, previous to the final examination of any person desirous of obtaining a diploma of qualification to practise the Art of Medicine, he shall produce a diploma, certificate, or letters-testimonial, of having taken a degree in medicine, or of having passed an examination in medicine or surgery before some university, college, hall, or other persons legally entitled to grant a diploma, certificate, or letters-testimonial, at the time of the passing of the act." This proposal secures the continued existence of the present machinery for granting professional qualifications, and avails itself of that machinery by making it imperative for a first stage of examination, but makes a second trial necessary before the Board appointed by the council. This examination, which is obviously intended to operate as a check on any laxity on the part of the existing Boards, and to equalize their proceedings, would certainly effect these objects to some extent, but by a procedure which is open to some objections.

The college Conceive that a third scheme might, without much difficulty, be devised, which, leaving the immediate conduct of the examinations in the hands of the existing Medical Boards, would, at the same time, place them under the superintendence of the senate or councils, proposed to be instituted, acting through the intervention of assessors specially appointed by them for the purpose. Such a conjunction of local examinations with general superintendence would possess the twofold advantage of avoiding any infringement of the privileges of existing institutions, and of, at the same time, removing all apprehension or suspicion of the examinations being conducted inefficiently by any Board, or with less strictness by one Board than by another. To many of the members of the College it appears that this conjoint method of testing the candidates' qualifications, by examiners appointed by the existing institutions, and assessors nominated by the senate or councils, might be rendered at once more easy of execution and more efficient, by taking advantage of the system of examining by written questions, now pursued in many institutions, in judging of the claims of candidates to degrees and other honours.

The examinations might either embrace all the subjects in the curriculum at one sitting, or separate sittings might be given to the departments of medicine, surgery, and midwifery; and it would be necessary that those Boards which do not examine on all the subjects in the curriculum should make an arrangement for co-operating with other Boards, in the same place, which might examine on those subjects to which their own examinations do not extend; so that every part of the course of study might be included in the examinations. The fees payable to these Boards should be uniform and moderate; and the proceeds, after defraying the expenses of the examinations on a scale approved of by the councils, should be applied, as they have for many years been applied by this College, to purposes of public and professional utility.

In concluding these general remarks on the subject of the proposed reform, as it respects the interest of the public, of medical practitioners, and of the existing medical institutions, the College is fully aware that when these three views are contemplated with the eye of an enlightened liberality, they must be found to be coincident. The College can aver, with truth, that they have pursued no corporate ends to the public injury; that they have sought to raise the standard of medical acquirement in this school by an enlarged system of education, proportioned to the wants of the age; that they have refrained for a very long term of years from making additions to the cost of their diploma; that their examiners have submitted to be greatly underpaid in order to enable the College to maintain their ground without such additions; and that their entire accumulations have been expended in erecting their Hall, and in purchasing and maintaining a Museum, to the accommodation of which the greater part of the building is devoted, and which is accessible to the public, and most beneficial to the medical school. Having made such use of their present privileges, the College conceive themselves entitled to claim the credit of disinterestedness in any advices which they may offer in reference to medical legislation; and they do most fully and unequivocally admit the supremacy of the public interest in all that relates to this most important subject. Let the medical incorporations be compelled to submit to all such regulations as the welfare of the public requires: let their privileges, in particular, altogether cease to be exclusive and local in their character; but let not an apparatus, so capable of being beneficially employed, be gratuitously and inconsiderately annihilated.

[The College then proceeds to examine and comment upon the proposals of Mr. Warburton and Mr. Hawes.]

UNIVERSITY OF LONDON.

SECOND EXAMINATION FOR THE DEGREE OF BACHELOR OF MEDICINE, NOV. 1840.

Physiology and Comparative Anatomy.—Richard Quain*†, University College; John Paddon†, University College; Edwin Wing, School of Physic in Ireland.

Surgery.—John Charles Bucknill†, University College; Thomas O'Meara, Mercers' Hospital, Dublin; Thomas Williams, Guy's Hospital, and Webb Street; Richard Quain, University College.

Medicine.—Thomas O'Meara*†, Mercers' Hospital, Dublin; John Douglas Strang†, University College; John Charles Bucknill, University College; Edwin Wing, School of Physic in Ireland; Thomas Williams, Guy's Hospital, and Webb Street.

Midwifery. — John Douglas Strang †, University College; Richard Quain, University College; Thomas Williams, Guy's Hospital, and Webb Street.

Structural and Physiological Botany.—John Douglas Strang, University College.

EXAMINATION FOR THE DEGREE OF DOCTOR OF MEDICINE, NOV. 1840.

Anthony French Carpenter, M.B. Lond.

MYODIATOMY.

To the Editor of the Medical Gazette.

SIR,

As every thing in science that is likely to outline a day should have a name, and that the operation of dividing muscles for the cure of deformities arising from their contracted condition seems to have taken rank amongst the practical operations of the day, will you allow me to suggest to the profession the propriety of adopting the term myodiatomy, to designate this operation generally.

I am not aware that it has been before applied, if so will you make it more known, and throw this behind the fire.—I am, sir,

Your obedient servant,

T.

London, Dec. 7, 1840.

APOTHECARIES' HALL.

LIST OF GENTLEMEN WHO HAVE RECEIVED CERTIFICATES.

Thursday, December 3, 1840.

Charles Fulford, Birmingham.—Charles Besley, Welwyn, Herts.—Charles Holttum, Canterbury. Frederic Melland, Manchester.—William Thorn.——Joseph Barwise, Warrington.—Charles M'Nish. Reading.—Thomas Nathaniel Meggison, Bolam, Northumberland.

METEOROLOGICAL JOURNAL.

Kept at EDMONTON, *Latitude* 51° 37 32″ *N.*
Longitude 0° 3′ 51″ *W. of Greenwich.*

Dec.	THERMOMETER.		BAROMETER.	
Wednesday 9	from 26 to	38	29·63 to	29·84
Thursday . 10	23	41	29·85	Stat.
Friday . . 11	24	36	29·85	29·87
Saturday . 12	32	39	29·95	30·14
Sunday . . 13	29	36	30·15	30·18
Monday . . 14	20	32	30·14	Stat.
Tuesday . 15	19	27	30·13	30·14

Wind S.W. on the 9th; S.E. on the 10th; East on the 11th; North on the 12th; N.E. on the 13th and two following days.

On the 9th clear; the 10th and three following days, overcast; the 14th clear; the 15th clear, except the morning, when snow fell.

CHARLES HENRY ADAMS

WILSON & OGILVY, 57, Skinner Street, London.

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* To each of these gentlemen has been awarded a University Medical Scholarship of £50 a year, for two years.

† To each of these a gold medal of the value of £5.

THE
LONDON MEDICAL GAZETTE,
BEING A
WEEKLY JOURNAL
OF
Medicine and the Collateral Sciences.

FRIDAY, DECEMBER 25, 1840.

LECTURES
ON THE
PRINCIPLES AND PRACTICE OF PHYSIC,

Delivered at King's College, London,

By Dr. Watson.

Lecture XIV.

Treatment of Inflammation, continued. Recapitulation. Bleeding: purgatives: mercury: antimony: digitalis: colchicum: opium.

Local remedies. External cold: external warmth: counter-irritation.

After pointing out to you, yesterday, the necessity of guarding your patient, as much as possible, from all stimulants or sources of irritation, both internal and external, the avoidance of which constitutes what is called the *antiphlogistic regimen*, I began to speak of the *remedies* of inflammation.

Now the great remedy in acute and dangerous inflammation is blood-letting: and when this remedy is used at all, it should be used freely, and so as to produce a decided impression: and its efficacy will always be the greater, in proportion as it is applied in the earlier stages of the inflammation. The objects of the abstraction of blood are two-fold: to lessen the force of the heart's action is one object; to empty the gorged capillaries of the part inflamed is the other. We effect the first of these objects, or both of them at once it may be, by making an orifice with a lancet, in the trunk of some convenient vein or artery, and allowing the blood to escape; we accomplish the second by making little incisions with a scarifier through the skin as near the inflamed part as we can, and forcing the blood through these little wounds by the pressure of the atmosphere: *i. e.* we take off the pressure from the part scarified, by placing over it a glass cup, from which the air has been in a great measure exhausted, and then the unbalanced weight of the atmosphere upon the surrounding surface forces out the blood: or we suffer leeches to scarify the skin, and to suck out the blood. These two modes of drawing blood, from the trunks of the blood-vessels on the one hand, and from the capillaries on the other, we call, respectively, general bleeding, and topical bleeding.

I say the main point to be achieved in general bleeding is so to manage the operation as to make a decided impression, as quickly as possible, upon the pulse or the heart: and to do this we place our patient in an upright position, and make a free orifice in the vein of one or both arms.

And when the force of the general circulation has been thus abated, it will in many cases be proper and necessary to take away blood from the capillaries also, in the neighbourhood of the suffering organ: this is almost always safe and good practice: there can seldom be any reason for abstaining from it, except when the general bleeding has brought the patient so low that the abstraction of a few more ounces in any way might be hazardous. But the employment of local depletion presently after general is *then* especially indicated, when the *local* symptoms remain unrelieved; when, although the indirect symptoms which manifest themselves through the medium of the system at large have been moderated by the general blood-letting, yet the direct symptoms belonging to the part, and disturbing its functions, the pain, for example, or the labouring breath, or the stupor, have not undergone a proportional improvement. Under such circumstances, the unloading the oppressed capillaries by means of leeches or cupping will often be attended with the happiest effects.

I mentioned that the most common way of performing general blood-letting in this country is by venesection; and that the veins chosen, as the most suitable for that purpose, are the cephalic and basilic veins at the bend of the arm: but that when, from accidental circumstances, blood cannot be obtained easily and abundantly from those veins, any other large and superficial blood-vessel may be opened. It matters little which, in my opinion, so far as regards the effect of the *abstraction of blood* upon the disease. Some persons are fond of opening the temporal artery when the inflammatory disease is situated in or about the head: and certainly, when we see this vessel starting from the surface like a cord, and tortuous from its fulness, and visibly throbbing, we feel tempted to give vent to the blood which is distending it. But arteriotomy is not so easily managed as phlebotomy. It is sometimes difficult to get the blood to flow properly; and it is sometimes difficult to stop its egress when we wish to do so; and sometimes there are after-consequences which are far from being pleasant: little aneurismal tumors are apt to arise. It is, besides, desirable to avoid the necessity of bandaging the head, in order to restrain the farther efflux of blood from the artery. Other practitioners recommend opening the external jugular vein in head cases, especially in children, whose veins in the arm are small. This is a plan which I have very seldom adopted, and which, I am bound to tell you, I do not much like: 1st. because I think it is seldom necessary; 2dly. because I think it is often unsafe.

It is seldom necessary: for in children we can always get as much blood by topical bleeding as will be equivalent to a general blood-letting. And it is unsafe in two ways: 1st. It is not always an easy matter to stop the bleeding from the jugular vein, especially in a struggling and unmanageable child; and the difference of a few ounces of blood may be a *fatal* difference. Here also any compression of the neck, to stay the hæmorrhage, might affect injuriously the cerebral circulation. 2dly. There is a distinct and peculiar danger attending the incision of this vein, that, namely, of admitting *air* into it. You perhaps are aware that if air enters a large vein near the heart, and passes on to that organ, it kills outright. If you open the jugular vein of a horse, and blow forcibly into it towards the heart, the animal drops down dead. The celebrated Dupuytren was performing some operation about the neck, in the course of which he cut across one of the veins there situate: some bubbles of air rushed in at its open mouth, with an audible clucking noise, and, in an instant, his patient expired. The same frightful accident has occurred in operations performed in this country, and in America. I was told very lately that in one of our metropolitan hospitals it was thought right, for some reason or other, to bleed an adult patient by opening his jugular vein: the opening was made very near the clavicle, so that pressure between the orifice and the heart was difficult to effect. Of course the blood soon leaves the portion of the vein nearest the heart; and whether by some suction power of the heart itself upon the veins, or how, one scarcely knows, but air rushed in, and the patient was presently a dead man. Perhaps misadventures of this kind may be capable of being prevented by using great caution in such cases: but as it is the etiquette for physicians to direct but not to perform these manual services towards the sick, and as, therefore, I should incur all the responsibility, and at the same time be able to ensure none of the necessary care, I confess that I am shy of recommending venesection to be made in that particular place.

Whether, all other things being the same, the abstraction of arterial blood be more effectual in restraining inflammation than the abstraction of venous, is more than I can tell you.

When topical bleeding is employed with the view of disburdening the turgid capillaries, either in chronic inflammation, or in acute inflammation as an auxiliary to general bleeding, it would seem most expedient to get as near to the part affected as we can. To apply, for example, our cupping-glasses or our leeches to the temples, or behind the ears, or just below the occiput, in inflammatory affections of the head; to the chest and præcordia, when the lungs or heart are the seat of the disease; to the surface of the abdomen, in inflammation of the liver, or stomach, or intestines, and so on. And this is the plan which I have almost always adopted; and with such satisfactory results that I have felt little inclination to try any other. But many persons do believe that local bleeding is more useful when it is performed at some distance from the affected part: they would put leeches, for instance, on the insteps, to relieve an inflamed throat; and they attribute the benefit that ensues to what is called *revulsion:* they suppose that the suction of the leeches solicits the blood, as it were, to that quarter, and diverts it from the vessels of the part that is inflamed. It seems to me that the revulsive influence of *topical* bleeding would be greater in the neighbourhood of the inflamed part than far from it. I know, however, some very practical men who have been much struck with the results of this distant blood-letting, which they had seen practised in the Parisian hospitals. Leeches are also sometimes applied at a distance from the seat of the inflammation, on another principle—that of drawing the blood directly from the veins which communicate with the diseased part. In abdominal affections, in inflammation of the liver or intestines, the French are in the habit of applying leeches in great numbers to the verge of the anus: because, they say, the blood is then abstracted from the very veins through which it is returning towards the already overloaded organs. It is right that you should be aware of these opinions, and of this practice. I can say but little of it from my own knowledge. I can well believe, however, that it is good and useful practice; but in this country we should find it difficult to persuade many of our patients to submit to have leeches planted round the anus: and I have seldom been disappointed of the benefit I expected from topical bleeding, when it has been employed at the surface as near the part inflamed as possible.

Purgatives.—The *evacuation* next in importance to blood-letting, is purging. This is an expedient which in cases of violent inflammation, or high general fever, should scarcely ever be omitted. To keep the bowels what is called *open*, forms indeed a part of the antiphlogistic *regimen;* but in acute inflammatory diseases, active purging is of very great service. These two points are gained by it. The stomach and intestines are freed from accumulated fæces, or other matters, which, by their bulk or their acrimony, might prove irritating: and at the same time depletion is carried on by means of the serous discharge which is produced from that large extent of mucous membrane. There are some cases of inflammation in which the operation of purgative medicines is of especial service; as in inflammatory affections of the head, either external or internal, of which part these medicines assist or cause the depletion in a very sensible manner. We have an illustration of this in the paleness of the face, which often, during health, accompanies the action of a brisk cathartic. The usefulness of repeated purgatives is less distinctly seen in inflammations situated within the thorax; although in these cases also they are often highly beneficial. They are efficient remedies too in all inflammatory conditions of the liver. But when inflammation has fastened upon the stomach or bowels themselves, although it may be indispensable that they should be unloaded of their contents, which are often composed of irritating ill-digested food, and of morbid secretions, no less irritating and hurtful, the propriety of going beyond this point is extremely questionable. I believe that much harm is often done by pressing the inflamed alimentary canal with active purgatives. But to all these points I shall have occasion to return.

Mercury.—Next to blood-letting, as a *remedy*, and of vastly superior value upon the whole, in serious inflammations of various kinds, to purgation, is *mercury*. This mineral is really a very powerful agent in controlling inflammation; especially acute, phlegmonous, adhesive inflammation; such as glues parts together, and spoils the texture of organs. It is of the greatest importance that you should accurately inform yourselves concerning the various effects of mercury upon the system: the changes it produces; the changes it arrests or prevents; the cases in which it does good; the cases in which it does harm; that you should learn, in short, how to wield a very potent, but a two-edged weapon.

If we inquire what mercury does when it is administered to a person in health, we find three very marked effects following its internal use. They vary, indeed, in different cases, and under different circumstances: but we know that the employment of mercury under any of its usual forms of exhibition is often followed by increased watery evacuations from the intestines; or by an increased discharge of bile; or by an increased flow of saliva; that is to say, it determines (as the phrase is) to certain secreting organs—the mucous membrane of the bowels, the liver, the salivary glands; it augments their natural secretion; and in this augmentation of secretion is implied an increased afflux of blood to the secreting part. It is probable that mercury has a similar influence on most or all the secreting surfaces of the body, altering the condition of the capillary circulation throughout. And an explanation of its curative power in inflammation has been drawn from this fact: it has been supposed that mercury thus tends to *equalize* the circulation; that by causing the blood to be distributed in larger quantity than common upon *several* surfaces at the same time, it obviates, *pro tanto*, its excessive congestion or accumulation in any one organ. Whether this hypothesis in respect to the *modus operandi* of mercury be true or not, I will not pretend to say; but it certainly is not an unreasonable hypothesis.

If you push this remedy in healthy persons, other effects ensue: inflammation is actually *produced:* the gums become tender, and red, and swollen, and at length they ulcerate; and in extreme cases, and in young children especially, the inflamed parts may perish: the cheeks, for example, sometimes slough internally. Not only the gums, but the throat and fauces, become red, and sore, and sloughy.

Now you will do well to observe what is the *character* of the inflammation thus produced. It is superficial, spreading, erysipelatous: it leads to ulceration without any distinct occurrence of suppuration: the ulcers enlarge. Of the three processes which I formerly pointed out as going on in different degrees, at the same time, in an ulcerated surface, that of absorption is vastly predominant; and you will find that persons in whom this local affection, this condition of the parts within the mouth, has been produced, get rapidly thin: their fat disappears: they become emaciated. That is, the absorption of the old materials throughout the body exceeds the deposit of new matter. Patients who are kept under the influence of mercury grow pale as well as thin: and Dr. Farre, who has paid great attention to the effects of this drug, remedial and injurious, holds that it rapidly destroys red blood: as effectually as it may be destroyed by venesection. As an example of this he was in the habit of relating in his lectures the case of a lady who was attacked with hematemesis: her gastric system and her liver were gorged with blood. "Her complexion," said the Doctor, "was composed of the rose and the violet. Under a course of mercury she was blanched, in six weeks, as white as a lily."

There are still other, occasional, effects of the continued introduction of mercury into the system: a peculiar eruptive disease; a peculiar condition of the nervous system: but with these I do not now meddle; they will come under our more particular consideration hereafter. At present I am desirous to place such facts before you as may help you to determine in what cases mercury is a fit remedy for inflammation: in what cases it would be improper to give it. The facts I have already mentioned shew that it has a loosening effect upon certain textures; that it works by pulling down parts of the building.

But the great *remedial* property of mercury is that of stopping, controlling, or altogether preventing the effusion of coagulable lymph; of *bridling adhesive inflammation:* and if we, in our turn, could always bridle and limit the influence of mercury itself, it would be a still more valuable resource.

From the little I have now said you will readily understand in what description of cases mercury is likely to be useful. In common adhesive inflammation, whether of the serous or the cellular tissues; whenever, in fact, you have reason to suppose that coagulable lymph is effused, or about to be effused, and mischief is likely to result from its presence then you may expect much benefit from the proper administration of mercury; as an auxiliary, however, to blood-letting, not as a substitute for it.

On the other hand, mercury is likely to be hurtful in those forms of disease "where the morbid action approximates to its own action." In cases of erysipelatous inflammation having a disposition to gangrene; in scrofulous diseases; in inflammatory complaints attended with general debility, and an irritable condition of the nervous system, or a manifest tendency to take on a typhoid character.

When we have to contend with acute inflammation, and desire to prevent or arrest the deposition of coagulable lymph, our object is, after such bleeding as may have been proper, to bring the system as speedily as possible under the specific influence of mercury. How may this best be done? and how are we to know that it has been achieved?

I will answer the last of these questions first. We know that the whole system has been brought under the specific influence of mercury, as soon as its effects become even slightly perceptible in the gums and breath of the patient; and in adults we can't be sure of it before. The gums grow red and spongy; the patient complains that his gums are sore; and that he has a metallic taste, a taste like that of copper, in his mouth: and an unpleasant and very peculiar fœtor, easily recognised again when it has been once perceived, is smelt in his breath. These symptoms are enough: you need not in general look for any more decided affection of the mouth, such as ulceration of the gums, swelling of the glands beneath the jaw, and of the tongue, and a profuse flow of saliva. Formerly, when it was believed that the material cause of the disease was carried out of the body with the saliva, the mercurial treatment was continued with the view of producing the discharge of many ounces, and even of a pint or two, in the twenty-four hours: but all that is requisite is that the gums should become distinctly tender, and that the mercurial fœtor should be unequivocally manifest, and that these symptoms should be kept up for a certain time.

Now this is best effected, usually, by giving some form of mercury in equal and repeated doses, by the mouth. For urgent cases calomel is the best form in which it can be administered: two or three grains, given every four or six hours, will generally suffice to touch the gums in the course of thirty-six or forty-eight hours. If it acts as a purgative its specific effect upon the whole system will be postponed by that circumstance; and it then becomes expedient to combine it with just so much opium as will prevent its passing off by the bowels. A quarter of a grain of opium with two grains of calomel—or a third of a grain of opium with three or four grains of calomel—will generally be sufficient to restrain the purgative operation of the latter. When a speedier effect is desirable we give larger doses; such as five or ten grains every three, or even every two hours: or we combine mercurial inunction with the exhibition of calomel by the mouth. It is impossible to lay down any precise rule that will fit all cases.

Blue pill, or the hydrargyrum cum cretâ, may, in certain cases, be preferable to calomel; but they must be given in larger doses. Some practitioners believe that a combination of blue pill and calomel acts sooner, and answers better, than a proportional dose of either, given alone.

This mode of giving mercury, so as to affect the system at large, is eminently useful in many instances of acute phlegmonous inflammation, after bleeding has been carried as far as the circumstances of the case will warrant. I repeat that it must not be allowed to supersede blood-letting. Previous bleeding renders the body more readily susceptible of the influence of mercury; and the operation of the mercury comes in aid of the salutary effect of the abstraction of blood. The two remedies accomplish by their joint power what neither of them could accomplish singly.

It is important to know that different persons admit of, or resist, the specific agency of mercury in very different degrees: so that in some patients the remedy becomes unmanageable and hazardous; while in others it is inert and useless. It is most grievously disappointing to watch a patient labouring under inflammation which is likely to spoil some important organ upon which it has seized, and to find, after bleeding has been pushed as far as we dare push it, that no impression is made upon his gums by the freest use of mercury. Such cases are not uncommon; and unfortunately they seem most apt to occur when the controlling agency of mercury is most urgently required. On the other hand, there are persons in whom very small quantities of mercury act as a violent poison; a single dose producing the severest salivation, and bringing the patient's existence into jeopardy. This history was told to Dr. Farre by a medical man, under whose notice it fell. A lady, whom he attended, said to him, at his first professional visit to her, "now, without asking why, or speculating about it, never give me mercury, for it poisons me." Some time afterwards she met with the late Mr. Chevalier, and spoke to him about her complaints; and he prescribed for her, as a purgative, *once*, two grains of calomel, with some cathartic extract. She took the dose; and the next morning showed the prescription to her ordinary attendant. "Why (said he) you have done the very thing you were so anxious to avoid; you have taken mercury." She replied "I thought as much, from the sensations I have in my mouth." Furious salivation came on in a few hours; and she died, at the end of two years, worn out by the effects of the mercury, and having lost portions of the jaw-bone by sloughing.

Another medical man informed me that he knew a person so susceptible of the influence of mercury, that when his wife had rubbed a very small quantity of white precipitate ointment upon her neck for some cutaneous affection, after sleeping with her his gums were tender for three or four days, and slight salivation took place. This did not happen once only, but three several times. On one occasion this same man took two blue pills, as preliminary to a common purge, and he was salivated profusely for six weeks. Cases similar to these occur now and then to most medical men: we cannot tell beforehand in whom such effects are to be looked for; but it is never prudent to neglect any warning which the patient gives of his own previous experience on this point. You will generally find that where the affection of the gums and salivary organs goes on to a troublesome or distressing extent, it has supervened upon the employment of a very moderate quantity of mercury.

So distressing are these effects of mercury upon the mouth sometimes, that I may pause a moment to tell you what I know about the mode of remedying them. You will constantly be called upon to do something for the relief of this disease (for so we must call it), which you yourselves, or some of your brethren, have with the best intentions inflicted. I have tried all sorts of expedients, and I have asked a great number of my friends what are the best means to adopt in such cases: but I never could get much satisfactory information from them. Some thought purging was the best thing. Others recommended alum gargles; or gargles made of the chloride of soda; and these last certainly have one good effect, that of correcting the fœtor. Others believed that sulphur, which has long been prescribed in such emergencies, was really of use; and some advised that the patient should be as much as possible in the open air: a few commended iodine. All admitted that they knew of no certain remedy. Neither do I. But there are two expedients which I am confident are often of very great use in checking the violence of the salivation, and in removing the most distressing of its accompaniments. If there be much external swelling, treat the case as being, what it really is, a case of *local inflammation:* apply eight or ten leeches beneath the edges of the jaw bones, and wrap a soft poultice round the neck, into which the orifices made by the leeches may bleed; and I can promise you that, in nine cases out of ten, you will receive the thanks of your patient for the great comfort this measure has afforded him. When the flow of saliva, and the soreness of the gums, form the chief part of the grievance, I have found nothing *so* generally useful as a gargle made of brandy and water; in the proportion of one part of brandy to four or five of water. This last piece of practice I learned from the present apothecary to the Middlesex Hospital; I have tried it over and over again; and I tell it to you as a thing worth remembering. These little points are by no means to be despised. A very fashionable and successful physician, now dead, used sometimes to say when he met others of his brethren in consultation, "It is all very well to speculate about the exact situation, and the precise nature of the disorder, but the question with me is, 'what is good for this, that, or t'other thing?'" A wise physician will seek to concombine with an accurate knowledge of disease, and settled principles of treatment, those practical expedients and minor appliances which are picked up by casual experience; which could never have been reasoned out; and which sometimes constitute nearly all that we can do for the benefit of our patient.

But to return to mercury as a remedy against inflammation. It is of great service in many cases of *chronic* inflammation; and I may repeat here the observation I formerly made when speaking of blood-letting—that the treatment must *keep pace*, as it were, with the disease. When textures have been slowly altered by a gradual deposition of coagulable lymph, we should gain but little by suddenly or speedily salivating our patient. The lymph, if it can be dispersed at all, must be *gradually* taken up again: and mercury, given with the view of promoting its absorption, must be slowly and gradually introduced into the system; and when at length its specific influence is felt, it must be sustained for a considerable length of time.

You must not expect any good, but the contrary, from the exhibition of mercury in scrofulous inflammations; and where the scrofulous diathesis is well marked, you should be cautious in giving mercury at any time. But I am certain that many men are *too* scrupulous on that head; and that, through over tenderness of your patient's constitution, you may risk his life, by withholding mercury because he shows tokens of scrofula. You may recollect my stating that scrofulous persons are not exempt from attacks of *common* inflammation; and in some such cases the probable aggravation of their general ill health is not to be put in competition with the immediate danger from the local inflammation. I have again and again seen scrofulous patients benefited by moderate salivation; which, if it proved injurious at all to their general condition, was certainly less injurious than the unchecked local complaint would have been.

Antimony.—There are some other remedies for acute inflammation which, in this general account of its treatment, I must briefly notice. Antimony is one of them; and a very valuable remedy it is in some forms of inflammatory disease. Antimony, properly administered, subdues the action of the heart and arteries, producing nausea, paleness, and sinking of the pulse, and frequently great relief to the local symptoms. You bring the circulation into that state into which it may be brought by free blood-letting. But when the violence of the inflammatory symptoms recurs again and again, you cannot again and again employ the lancet: and if you do so employ it as at length to extinguish the inflammation, you reduce your patient to a state of pitiable, and even perilous, debility. Now you may continue or repeat the depression of the circulation by means of antimony, without any dread of such subsequent weakness. Antimony, as far as my own observation goes, is admirably suited to cases of active inflammation, in which mercury would either be not so useful, or could not be brought to bear. It is in inflammation of the mucous membrane of the air passages that antimony is so signally beneficial. You will see a patient labouring for breath, unable perhaps to lie down, with a turgid and livid countenance from imperfect arterialization of the blood. He has been ill but a short time; it is an acute affection; and upon listening at his chest, you hear that peculiar wheezing sound which we call *sibilus*, in every part of his lungs. I shall have to describe this sound, and its causes, and its meaning, in a future part of the course. You give such a patient repeated doses of antimony; he becomes sick, vomits perhaps, but he feels nausea; his pulse becomes less forcible, his face grows pale, and he can breathe again. The nausea is not a pleasant sensation; but the want of breath is a far more distressing one; and that is greatly mitigated. Perhaps a free secretion takes place from the congested membrane, and then the patient is easy and safe. Now you could not effect this change so quickly and readily, or so conveniently, by mercury, and perhaps not at all. Bronchitic affections are very common in children, in whom it is usually difficult to induce the specific influence of mercury.

On the other hand, antimony does not appear to be nearly so valuable a remedy as mercury, when serous membranes are inflamed.

The French and Italian physicians place much reliance upon antimony for the cure of inflammation; and they seem to know little or nothing of the remarkable agency of mercury upon that disease. For my own part I do not see how any useful *comparison* can be made between these two substances in respect to inflammation, considered generally, as we are now considering it. There are some particular forms of inflammation to which the one remedy is better suited, and there are others in which the other is most effectual. I must content myself with having adverted to these distinctions for the present.

As to the form in which the antimony should be exhibited, I apprehend that we shall all come at last to freshly dissolved tartar emetic. The antimonial powder is of very uncertain strength; and the antimonial wine contains too much spirit to allow of its being given in large and frequently repeated doses. It is a curious circumstance, that although vomiting and purging are apt to be produced by the first two or three doses, they usually cease when the same quantity is persevered with. *Tolerance* of the remedy is produced. But although these unpleasant primary effects cease, the curative agency of the antimony appears to continue. When you desire to obtain its full influence in a short time, you may dissolve a grain of the tartar emetic in two ounces of hot water; and give a fourth-part of the solution every half hour. If the patient becomes pale and sick, you pause a while and allow him to recover himself; and if the inflammatory symptoms return, you repeat the medicine. It sometimes acts violently upon the bowels, and then it will be necessary to add a few drops of laudanum to each dose.

Digitalis.—Digitalis is another powerful medicine, from which much was at one time hoped as a remedy for active inflammation; but those hopes have been in a great measure disappointed. It is not a manageable remedy in such cases. Its singular property of retarding the circulation, of bringing down the number of the heart's pulsations, and abating its force, led to the expectation that it might render the use of the lancet unnecessary.; that it might check the inflammatory process without permanently reducing the strength of the patient. But if you give moderate doses of digitalis, its peculiar effect upon the pulse comes on at very uncertain periods, and may be postponed until it is too late to be of any service. If, on the other hand, you give it in such quantity as speedily to affect the heart's action (which is what we want in acute and serious inflammation), then you are never secure against what may be called its poisonous effects: deadly faintness, frightful syncope, and even death itself. Most practitioners can tell of cases in which patients, who were taking full doses of digitalis, have suddenly expired; and when the remedy has appeared to have had more to do with the fatal event than the disease. There are practitioners, however, and I know one of them, who affirm that digitalis may be given, after due depletion, and in acute inflammation, in very large, and I should say startling doses, with the very best effects—doses which range from half a drachm to half an ounce, and even six drachms of the officinal tincture. I confess to you that I should be very unwilling to sanction this mode of using digitalis. I never attempt to employ it with the view of knocking down acute inflammations—to which alone you will observe that my present remarks apply. Digitalis is often of great service in other complaints; but I am not at present discussing the remedial virtues of digitalis, or of any other drug, except so far as they relate to the cure of recent and active inflammation.

Colchicum. — Colchicum is a remedy which is often prescribed in inflammation. It is a most valuable remedy in certain *specific* forms of inflammation. But for repressing common phlegmonous inflammation we have much more certain and better remedies. For this purpose colchicum is, I believe, a very unimportant medicine.

Opium.—I have formerly been asked, by students attending here—and therefore I anticipate the question now—respecting the utility of *opium* as a remedy in inflammation. Certainly opium, like most of our powerful medicines, may do much good, as it may do much harm, in different inflammatory diseases; and it is not very easy to point out clearly, in a general view of the treatment of inflammation, the rules for its administration by which we must be guided in different cases. Yet there are a few general observations which I may make now on this subject.

The administration of a full dose of opium has been strongly recommended after that free and effective bleeding which I have already described. It prevents the rekindling of the inflammation which is apt to result from irritation of the nervous system—a kind of irritation, you will remark, which the copious abstraction of blood is calculated to produce; or to augment, if it finds it already existing. The opium soothes this nervous irritability; and it must be given, when given at all, in doses that will have that effect. It is best adapted to those cases in which a natural irritability is inherent in the constitution of the patient—to those in which such irritability has been acquired by bad habits of life—and to those in which the local disease is attended with much *pain*, which is in all constitutions a source of irritation.

However, this is a remedy which requires to be used, in inflammation, with great caution and discrimination. In cases of active inflammation within the cranium, its propriety is very questionable. It is apt to confuse both the patient and his physician, who is unable to say, after a full dose of opium has been given, how much of the stupor that follows is owing to the disease, and how much to the drug. It is a very ticklish remedy in pectoral inflammations. I believe that by the free use of opium I saved the life of a relation of my own, an old lady, who was in danger of being worn out by the cough and bronchial affection which attended the influenza. On the other hand I have certainly known more than one person, labouring under extensive and severe bronchitis, so effectually quieted by a dose of the same medicine, that they never woke again. As a general rule I should say that you should be very careful how you venture upon opium in inflammatory diseases that tend to produce death by *coma*, or *apnœa*. If there be any unnatural duskiness of the face, if ever so slight a tinge of purple mingles itself with the red colour of the lips, this is an appearance which should warn you against opium. It shows that the blood is imperfectly arterialized; and imperfect arterialization of the blood, as I hope you all know now, either results from, or conduces to, a state of coma.

On the other hand, it is, *cœteris paribus*, in cases where the tendency is towards death by *asthenia*, that the use of opium, as a remedy for inflammation, is most serviceable. It has a capital effect often, after free bleeding, in cases of peritonitis, and of enteritis. It probably does good in various ways: by quieting the nerves — by sustaining the faultering action of the heart—by keeping the inflamed parts at rest. There are some frightful accidents in which we can expect little from blood-letting, but in which the judicious employment of opium affords some glimmering of hope. I allude to those cases of intense and general peritonitis which arise upon the escape of irritating substances into the cavity of the belly; the contents of the intestines, from ulceration, or from external injury; urine from rupture of the bladder; and so on. If there be any hope for such cases, it is to be found in the continued exhibition of opium in considerable doses. But upon all these points I shall go more into detail when we come to consider individual diseases.

External remedies.—A very few remarks, in respect to external remedies in cases of inflammation, will terminate both this lecture and what I have to say, thus generally, of the treatment of inflammatory complaints.

Cold.—The application of external *cold* will aid us very powerfully, in certain serious cases of inflammation; and especially in cases of inflammation within the cranium. It is really wonderful what a sedative and soothing effect this expedient frequently has in allaying delirium, the result of active inflammation of the brain and its membranes. Thin folds of linen, kept constantly moist and cold, by cold water, are placed upon and around the shaven head. We often apply ice in the same way. [illegible] present into any deta [illegible] will only observe, that we have a most excellent and simple guide as to the probable usefulness of cold applications to the head, in the *sensations* of our patients. It is very lucky that it is so. As long as the cold cloths, or the bags of ice, are pleasant and grateful to the patient, so long we sedulously continue to apply and renew them: as soon as the patient dislikes them, they had better be intermitted.

Cold applications to the *chest*, and to the *belly*, in active inflammation of parts situated within those cavities, have been praised by some practitioners; but I believe are very seldom employed. I have no personal experience either of their utility, or of their hurtfulness. I confess that I should not like to use them. I should think that the effect of the cold, in driving the blood from the cutaneous vessels, and accumulating it in internal parts, would be likely to be injurious. We shall see, by and by, that the contents of the skull are differently situated, in this respect, from those of the thorax and abdomen.

Warmth.—The totally opposite measure, applying *warmth* to the surface, is of very great service in many cases of internal inflammation: especially in inflammations of the abdominal organs. We speak of cold *lotions*, and of hot *fomentations*. These last are managed in various ways, which I do not at present enter into. They seem to do good by determining to the surface; they promote perspiration; they mitigate pain, and persuade to sleep.

In cases of *external* inflammation, sometimes cold and sometimes warm applications are found to be of use. In this matter also the sensations of the patient afford the best criterion. Both of them tend, in different circumstances, to promote resolution. We have an illustration of the beneficial agency of cold applications for this purpose in the treatment of recent burns and scalds, particularly when the injury is superficial, and the skin has not been destroyed. Probably there is scarcely any one present who has not experienced the relief given to the *pain* of a burned finger, by dipping it in cold water; and the return of the pain upon taking the finger out again. The cold may be so constantly applied that the pain will cease to recur when the application is at length suspended. Dr. John Thomson relates a case in which a burned arm was kept immersed in cold water for two days and two nights incessantly; and the inflammation was thereby wholly prevented. I have known this expedient fail, however. A nurse in the Middlesex Hospital fell as she was carrying a pail of hot water upstairs, and in her fall [illegible] one of her arms into t [illegible] Without loss of time the same arm into cold water; but after a while was obliged to desist; the cold immersion bringing on severe rigors.

In erysipelas, I am persuaded that warm fomentations not only afford more comfort, but are more effectual and safer than cold lotions.

Independently of their occasional influence in promoting *resolution*, warm applications, warm soft poultices for instance, are often used with the view of forwarding *suppuration*. Hence this rule. Whenever resolution of the inflammation is *possible*, but suppuration is *likely* to ensue, warm applications are the most proper: because under their use we have an equal chance of obtaining resolution, with less hazard of retarding, or rendering untoward, the process of suppuration, in case resolution does not take place.

Counter-irritation.—*Counter-irritation*, by means of blisters, sinapisms, irritating ointments, setons, issues, or moxas, is often very beneficial. It probably operates by attracting blood into the neighbouring parts, and in the same degree diverting it from the inflamed part. It is most serviceable in chronic inflammations, and towards the decline of those which are acute. It is particularly adapted to scrofulous affections. There is an objection to the use of counter-irritation during the height of the inflammatory fever, on account of the increase of general irritation which it would then occasion. Neither in local inflammation should counter-irritation be applied *very* near to the inflamed part. Blisters are not proper, therefore, at least in the early stages of the disease, in acute inflammation within the cranium; but they are sometimes applied in such cases, with advantage, to the lower extremities. Blisters to the chest, however, in thoracic inflammation, and to the belly in abdominal, are often not only perfectly safe, but of the greatest use, as will, I trust, be apparent, as we go on.

NEW OPERATION FOR LATERAL CURVATURE OF THE SPINE.

To the Editor of the Medical Gazette.

Sir,

As the new operation for lateral curvature of the spine, which you did me the honour of inserting in your journal of 27th ult., appears to have excited some interest in the profession, and to have directed attention to a branch of surgical practice which has long been neglected, a few further observations on this important subject may not, perhaps, be deemed unacceptable.

The result of the operation above alluded to has in every respect realized my most sanguine expectations. The spine, which previous to the operation suffered a deviation of at least three inches from the mesial line of the back, involving the six superior dorsal vertebræ, is now reduced to within half an inch of its natural situation, the right shoulder has fallen on a line with its fellow, and the muscles on the *concave* side have acquired a considerable increase in bulk. The breathing, which before the operation was difficult and impeded, is now perfectly free, the chest expanded, and nearly restored to its natural shape. Amongst the changes that have taken place in the state of the back, the sacro-costalis and longissimus dorsi muscles on the *concave side*, which before were scarcely perceptible, can now without difficulty be traced from their origin to where they pass beneath the trapezius and rhomboid; evidently shewing an increase of activity, and a corresponding development of muscular structure.

On the Monday following the above, Nov. 30th, I operated on another lad, 16 years of age, who had been affected with lateral curvature upwards of four years: the convexity in this case was towards the left side, and extended from about the fifth to the tenth or eleventh dorsal vertebræ, being precisely that condition of curve which I have described as the second stage of this complaint. There was considerable excurvation of the ribs on the right side; those on the opposite being much depressed. The left shoulder was slightly elevated, and the right hip projected; the chest had undergone great alteration in shape, and the functions of the lungs were impaired. The sacro-costalis muscle on the *concave* side was much larger than its fellow, and was seen passing from its origin up to the centre of the curve—evidently a counteracting agent to any further deviation of the spinal column, and which from thus acting had suffered considerable enlargement.

This operation was performed in a manner precisely similar to the former, and the results have been just as satisfactory. I should remark that the lad was left-handed, and although his occupation was light, being that of a cigar-maker, yet he had been in the habit of lifting heavy weights occasionally with his left hand.

The displaced vertebræ, with the exception of two, have in a very gradual manner regained their situations; the ribs are losing their rounded or barrel-like form, and the back itself now scarcely bears any trace of deformity. He has increased in height since the operation.

My next case was a delicate female of six-and-twenty, who had been affected with lateral curvature of the spine ten years: her occupations were sedentary. She regards the curvature as a consequence of close application to a piece of embroidery she was anxious to complete when about 15 or 16 years of age. From the habit of sitting some hours at a time before the frame, with the right hand above and the left beneath, a lateral inclination was given to the spine, which in a very short time increased to the extent it was when she applied to me. On examining the back I found the deviation to extend from the fifth cervical to the seventh dorsal vertebra on the right side, not in the form of a simple lateral curvature, but directed outwards and backwards—*postero-lateral.* The ribs formed a most singular appearance, being flattened at the sides, with their angles projecting in the shape above mentioned, much in shape like a mower's scythe, whilst the points of the false ribs appeared almost protruding through the abdominal integuments. The spine below the seventh dorsal vertebra was perfectly straight; the left side was much contracted, but scarcely any projection of the hips. By bending the body forwards I could distinctly trace the sacro-costalis muscle, stretched like a tense cord through its whole course, and the longissimus dorsi, as far as the greatest point of the convexity of the curve, was full and firm; beyond this it was lost.

The trapezius and rhomboid muscles of the left side differed materially from the preceding cases, for beyond the point alluded to scarcely any trace of muscular substance existed. The same appearances were exhibited on the left side as I have witnessed in the generality of these cases, and the muscles appeared thin and weak throughout their whole extent.

Reflecting on this case I found no difficulty in satisfying my mind as to the side on which the division of muscles should be effected. The trapezius and rhomboid muscles had never been thrown into considerable action, nor was it at all apparent that they had any influence in producing the curve; on the contrary, they were attenuated and weakened.

On Saturday, Nov. 28th, she underwent the operation. Directing the patient to bend forward, I passed a narrow curved bistoury beneath the external edge of the sacro-costalis muscle, on a line with the last dorsal vertebra; and carrying it inwards and downwards until it reached the transverse process, I depressed the handle, and gradually withdrew the bistoury, making a complete section of the muscles without wounding the integuments, a powerful retraction took place, leaving a space of at least half an inch between the divided edges. Immediately on withdrawing the bistoury a gush of blood followed, which was easily suppressed by pressure. Up to this time the patient has not had a bad symptom; the wound suppurated, a circumstance I should by no means regard as unfavourable, inasmuch as it prevents too early an union of the divided surfaces: it has now healed. Although I operated on this case by the urgent request of the young lady, yet I did so with faint hopes of success. I am happy to say the results have far outstripped my expectations: the displaced vertebræ are gradually moving towards the mesial line of the back; the left side much less contracted; and the ribs no longer form that projection in front of the abdomen. She has increased an inch and a half in height since the operation.

In the subsequent treatment of these cases I have employed extension by means of pulleys, the head being made a fixed point, whilst cords were attached to a circular band round the hips. This cannot be ventured on till the seventh or eighth day after the operation: in my first case I recommended it on the fourth day, but was compelled to discontinue it.

The position in which the patient lies should be a matter of great moment for the first three days subsequent to the operation: the prone position is the best: after that period it should be changed, and a folded pillow placed in apposition with the dorsal curve, and in such a manner that the patient lying on her side, with the upper and lower portion of the trunk bending over it, the intercostal muscles on the opposite side are kept upon the stretch, and the ribs separated from each other. The patient should then be induced to grasp with his left hand a rope suspended from the ceiling, and at such a distance from the body as to keep the rhomboid and trapezius on the stretch, and at the same time endeavour to bring the arm to the side: by this latter movement these muscles are thrown into a state of activity. This should be repeated frequently during the day.

I must beg leave to correct an error I have fallen into in my former letter. In alluding to the case, I observed, that in the curvatures that are met with amongst young children and delicate females, the muscles on the *concave* side acquired an increase of action, whilst those on the opposite suffered a loss of power. I am now convinced that this increase of thickness, which is sometimes observed, has no effect whatever in producing the curve, but, on the contrary, is the result of a continual effort to draw the spine towards the mesial line of the back, as was instanced in the second case I operated on. A lateral inclination is first given to the spine, either by certain occupations of life, in which the trapezius and rhomboid become inordinately acted upon, or by certain bad habits acquired in the siting or standing posture: the sacro-costalis and longissimus dorsi, below the convexity, become shortened, as a secondary result, and in conjunction with the above mentioned muscles resist every attempt to reduce the spine to its original position.

I can easily conceive, were these muscles (the sacro-costalis and longissimus dorsi) free in their whole extent, from their origin to their insertion, lateral curvature might be induced by approximating their points of attachment, bearing the same relation to the spine that a string does to a bow: such not being the case, it must be assumed by the abettors of this doctrine that the muscles acquire an irregular power of contraction, that a predominance of muscular power exists in their external division, whilst the internal, attached by means of strong tendons to the tranverse processes of the vertebræ, are in a passive or weakened condition. Mr. Bamfield, in alluding to this subject, has observed, that he has never met with a case in which the shortening was on the concave side of the curve, but that by dissection he has always found these muscles smaller and weaker.

As to the situation of the primary curve, there can be no doubt in the minds of those who have had an opportunity of seeing these cases in their earlier stage, the dorsal vertebræ being in a majority of cases the first to suffer displacement.

I am happy to find from Mr. Laycock's communication last week, that he has adopted views similar to myself respecting the class of muscles to be divided: it would be interesting to know the result of his late operation. Respecting our priority of claim, I am unwilling to arrogate to myself any unmerited position, not forgetting the old latin adage "Palmam qui meruit ferat."—I am, sir,

Your obedient servant,
G. B. Childs.

Wood Street, December 15, 1840.

ON THE TREATMENT
OF
CERTAIN DISEASES OF THE BRAIN,

By E. Copeman, Esq.

[*For the Medical Gazette.*]

There appears to have been of late a considerable though gradual change in the views of some eminent members of our profession respecting the pathology and treatment of certain disorders of the brain and nervous system. The subject, it cannot be denied, is one of the greatest importance that can occupy the attention of the medical world; and it seems desirable to place upon record any facts that may tend to elucidate the real nature, and proper treatment, of maladies so frequently terminating in death. For a long time it has been held that apoplectic and paralytic seizures are caused by pressure upon the brain or spinal marrow, or by organic and incurable disease of those nervous centres; and this doctrine of congestion, and pressure from loaded vessels, or consequent serous effusions, has led to the almost indiscriminate practice of free blood-letting, as the most likely means of saving the patient. In my own limited experience I have several times observed that bleeding in apoplectic and paralytic attacks has been followed by very unsatisfactory results; and the excellent remarks published by Drs. Holland, Griffin, and others, have convinced me that it is safe and right to employ other means of relief, and better not to rely upon the indiscriminate use of the lancet.

The following cases are offered under the idea that they may, in some slight degree, confirm this opinion, and contribute towards throwing light upon this very imperfectly understood branch of the science of medicine.

CASE I.—*Apoplexy occurring three times in the same individual.*

On the morning of the 18th of January, 1839, I was summoned in haste to a gentleman residing at a short distance from my house, who had been attacked with slight vertigo, and confusion of thought, whilst dressing. He was advanced in years, being upwards of seventy, and had spent great part of his life in India; he was low in stature, corpulent, and short in the neck. He had long been accustomed to high living, and had been the subject of chronic inflammation of the air passages. Not many months before the present attack I removed two polypi from the nose, and, until within a very short period, he had profuse muco-purulent discharge from one nostril.

I found him complaining of giddiness, and his conversation was incoherent—pulse excited, but not very full; tongue furred; slight pain in right temple. I immediately drew about sixteen ounces of blood from the arm, and administered purgative medicines. He was slightly relieved by the bleeding, but in the course of the day he almost lost the power of expressing himself, his memory failed, and he was scarcely able to stand alone. I requested a consultation, and in the evening met an experienced practitioner from Norwich, who advised cupping: this was performed in his presence, and before many ounces of blood could be drawn, the patient had a convulsive start, became faint, and it was feared a paralytic seizure was at hand. The cupping was immediately discontinued, and he was removed to a warm bed. He took

Pil. Hyd., gr. v. at night, and had a blister applied behind each ear.

19th.—His mental faculties very much confused; quite unable to express himself intelligibly. Slept tolerably during the night; pulse languid; tongue furred; bowels open.

Capt. Haust. Salin. t. d.

20th.—In much the same state. He made frequent attempts to speak, and appeared to know what he wanted, but I could not make out a word. It seemed to me that he might be speaking Hindostanee, or some Indian language that he had been accustomed to in former days; but his lady, who had also lived in India, could not at all understand him.

Ordered a large blister to the nucha, and Haust. Salin. t. d.

21st.—Slept well. Pulse soft and languid; bowels acting. Has taken no food, except gruel and thin broth, at present.

Cont. Haust. Salin.

24th.—No particular alteration occurred till this morning, when he made me understand that he felt sick, and had pain in the forehead. He could not recollect the name of any thing or person—for instance, the name of the gentleman who met me in consultation on the 18th—but he had some slight remembrance of the circumstance.

A blister to the temple. Blue pill and rhubarb at night. Draughts as before.

25th.—Pain removed from the forehead. Bowels free; tongue cleaner; pulse soft. More generous diet allowed.

It is not necessary to enter into all the details of this case; suffice it to say that as his general health improved he regained the power of language; the first indication of this, which I observed, was his asking me, at one of my visits, for some water, in Latin: he could not then recollect the English name of it. He each day improved in this respect until he could speak tolerably well. His memory, however, remained feeble; his eyesight, particularly in the right eye, was imperfect, as if the retina were partially paralysed; and owing to this failure of sight, coupled with an incapability of directing his attention to any particular object for even a very short time, he found it impossible to write, or to attend to any business whatever. His hands also were tremulous, and the whole muscular system weak and unsteady, perhaps from not being sufficiently controlled by his debilitated brain.*

Several months elapsed before he appeared to be much stronger; but at length his eyesight was restored, and his faculties in general became more perfect. His digestive organs were kept in order by small doses of blue pill and rhubarb, and saline draughts. In July he left home on a visit of some weeks' durrtion to some friends in a distant county; and on his return might be said to have quite regained his usual state of health.

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* Dr. Marshall Hall, in a memoir on the Nervous System, published in the twenty-second volume of the Medico-Chirurgical Transactions, observes that in cerebral paralysis the irritability of the muscular fibre becomes augmented for want of the application of the stimulus of volition; and that the cerebrum is the exhauster, through its acts of volition, of the muscular irritability.

The impression, at the time, as to the nature of the attack, was, that it was a case of threatened apoplexy, mitigated by the early adoption of antiphlogistic measures; that effusion had taken place, and that the gradual amendment in the patient's health was probably consentaneous with the absorption of the effused fluid, and consequent removal of pressure from the brain. From what I have witnessed in the subsequent attacks about to be related, I now believe it to have been nothing more than sympathetic functional disorder of the brain, from disturbance of the digestive organs; and that the slow recovery was owing to the debility caused by abstraction of blood.

On the 5th of November, in the same year, my attendance was suddenly required by the same gentleman under the following circumstances:—About three hours after a heavy dinner, he appeared to his family to be a little confused in his speech, asking for the same things several times over, and then forgetting what he had said. I was quickly on the spot, and found his manner hurried and confused; his tongue furred; his pulse languid and feeble. His friends urgently requested me to bleed him, but considering the state of the pulse, I recommended in preference a purgative dose of medicine, and with some difficulty persuaded them to allow the bleeding to be deferred for the present. He took directly a calomel powder and a strong senna draught. About half an hour afterwards I was again summoned in a great hurry: after having taken his medicine he had been assisted up stairs, but as soon as he had seated himself in his easy chair he groaned, and fell forwards insensible upon the ground. I found him lying on the floor in profound apoplexy. Stertorous breathing; cold skin; face covered with cold perspiration; great insensibility; pulse very small and feeble; no convulsive movements. Some remarks were made reflecting upon my not having bled him on my first visit, inferring that if I had done so I might probably have prevented the fit; and in accordance with the wishes of the attendants I now opened a vein, but, as might be expected from the state of the pulse, not more than an ounce flowed. We then put his feet in hot water, applied strong hartshorn and aromatic vinegar to the nostrils, and endeavoured to make him swallow a little brandy and water, for I thought he was rapidly sinking, and would not live half an hour. The hartshorn at length caused a convulsive sigh, and by applying it most assiduously he was roused sufficiently to open his eyes, and raise his hand to his nose as if to prevent the further application of the stimulus; it was however persevered in, and shortly after he showed signs of returning consciousness; in a few minutes he became sick, and vomited the largest quantity of ingesta I ever saw rejected from the human stomach. The vomiting continued at intervals for a quarter of an hour, and roused him still more, so that he was able to recognise persons in the room, and to make inquiries as to what had been the matter; he said he felt very weak and ill, and we soon got him into a warm bed. An hour afterwards he was able to answer questions readily, and expressed himself extremely desirous of getting sleep. Gave a small quantity of brandy and water.

6th.—Slept comfortably in the night; pulse quiet; skin perspiring; tongue furred; no complaint of languor and sickness. Took blue pill and rhubarb and senna draught during the day, which acted freely on the bowels. Could bear but very little muscular exertion; breathing easy; slept frequently during the day.

7th.—Passed another good night, and awoke refreshed. Took a little tea and toast. No sickness nor headache.

Cont. Haust. Sennæ.

The next day he was down stairs, conversing cheerfully with his family; took gruel, meat, broth, and pudding. Kept bowels free with senna draughts. I continued to see him daily till the 12th, when he was so well that I discontinued my attendance. Ten days afterwards I called again, and found him remarkably well, able to walk about his grounds, and to take drives in his carriage without fatigue. No dimness of sight or paralytic affection occasioned by this attack.

On the 30th of May, 1840, about eight o'clock in the morning, this gentleman had another fit. He was seized with giddiness as he was coming down stairs, and shortly after he fell back in his chair insensible, his head dropping forwards upon his chest, and his face covered with cold perspiration; breathing stertorous, with discharge of frothy saliva from the mouth; loss of muscular power in the limbs; skin rather cold; pulse languid and labouring. A very few minutes elapsed before I arrived, and his lady pressed me much to bleed him forthwith, having already prepared bandage, basin, &c., for the purpose; but my experience of his former attacks, and a knowledge of his having been at a dinner party the evening before, determined me not to bleed; and although the number of hours which had elapsed since food was taken seemed to point out that vomiting was not so likely to afford relief as in the second attack, which occurred soon after a meal, yet I resolved to empty the stomach; and having applied strong hartshorn to the nose to rouse him, managed to pour down his throat a draught of senna, containing a scruple of Ipecacuan powder. His feet were put in hot water. In about a quarter of an hour he appeared gradually to regain his consciousness, and asked in a hurried manner whether he had been ill. He said he felt sick and must go to bed, but he was not allowed to move. He soon began to recognise his attendants, and asked them what was the matter. Whilst sensibility was thus returning, and before vomiting commenced, a curious phenomenon occurred. He was sitting with his head resting upon his hand, and his elbow supported by the arm of the chair; and whilst in this position he had frequent twitches of the trapezius muscle, pulling the head towards the shoulder. I observed at the same time similar convulsive movements, synchronous with the former, of the rectus externus occuli, turning the eye towards the outer canthus*. After he had vomited these twitches ceased, and the powers of the brain seemed much restored: he vomited a second time, and then appeared perfectly sensible of every thing that was passing; breathing became natural; took some aperient pills and senna draught, and lay in a recumbent posture on a sofa. The medicine soon acted powerfully upon the bowels, and in a few hours he was sufficiently recovered to read a letter written in a rather illegible hand. In a few days he was quite well, and has remained in good health to the present time.

CASE II.—*Hemiplegia cured without bleeding.*

Mrs. S., a farrier's wife, æt. fifty-eight years, thin, but active and industrious, experienced a numbness in her left hand whilst preparing dinner for her family, which prevented her holding what she was using at the time. This occurred about noon, on the 23d of January, 1840, and was quickly followed by darting pains in the right temple. Feeling very unwell, she managed to get up stairs into her bed-room, and almost immediately lost her speech and the use of the left leg and arm. She had for some weeks previously felt occasional pain and numbness in the left forearm, which she considered to be rheumatism, and scarcely worthy of notice. I saw her at 3 P.M., and found her sitting in a large easy chair, with the following symptoms:—left cheek partially paralysed, and mouth drawn to the opposite side; articulation very imperfect; pain in right temple, but less severe than at first; left arm hanging by her side quite powerless; left leg imperfect in its movements, but not quite paralysed; pulse feeble and indistinct; skin cool, with a tendency to shivering; nausea, and a sensation of faintness. Before I saw her she had swallowed with difficulty a little wine and water, and felt the better for it. The first question was, "Won't you bleed her as soon as possible?" I did not feel disposed to accede to this; but, from the depressed state of the system and cold surface, in preference administered a little more warm wine and water, and got her into a warm bed, with the head and shoulders a good deal raised.

Applic. Empl. Lyttæ Ampl. Nuchæ.

℞ Magn. Sulph. ʒvj.; Inf. Sennæ, ℥vj.; Dec. Aloes, c. ℥ij.; Tr. Jalap c. ʒij.; Tr. Hyos. ʒj.; Syr. Rhamni, ℥ss. M. cochl. larg. iij. 2dis horis donec alv. bene respond.

11 o'clock P.M.—Rather drowsy, but easily roused; breathing quite natural and easy; pulse 72, and soft; skin warm; speech less imperfect; left leg less powerless; pain in the forehead intermitting; says she feels more comfortable in every respect; blister drawing; bowels not yet relieved.

Cont. Mist.

24th.—7 A.M. Slept quietly several times for about an hour, without dreaming; had taken all the mixture, and swallowed the last dose without difficulty; skin warm; pulse 72; bowels acted powerfully three times; vomited once; can move the leg freely, and, to my astonishment, moves the forearm in the directions of flexion, extension, and rotation, to some considerable extent. I had intended to apply leeches to the right temple this morning, but the pain had so much abated that I postponed it for the present. Takes gruel, tea, and milk.

R Magn. Sulph. ℥ss.; Dec. Aloes, c.; Inf. Sennæ, aa. ℥ij.; Tr. Hyos. ʒj.; Aquæ, ℥ij. M. Cochl. larg. ij. 4tis horis.

9 P.M.—Much inclined to sleep, but quite sensible and collected when awake; pulse 60, regular, and soft; skin moist; can lift the left arm out of bed, and, when sitting up in bed, can raise her hand to the top of her head, but says the elbow feels heavy; urine scanty.

Cont. Mist.

25th.—Found her dressed and sitting up in an easy chair; can walk about the room, and move the arm almost without difficulty; no vertigo; pulse 72; bowels open; no drowsiness; very little distortion of the mouth.

26th.—Rather more pain in the temple, for which a blister was applied behind the ear.

Cont. Mist.

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* This occurred during nausea, and before the brain had regained its natural powers. Was it not produced by the state of the stomach influencing the spinal accessory, and the sixth nerve, through the medium of the par vagum and great sympathetic? It ceased as soon as the brain recovered, and the equilibrium of the nervous system was restored.

27th. — Blister drawn well, and pain in forehead removed; tongue milky; complains of slight numbness at the ends of the fingers, and feels languid.

℞ Inf. Gentian; Dec. Aloes, c. aa. ℥iv. M. Cochl. larg. ij. t. d. To take mutton broth with bread.

29th.—Improving; sits up several hours, and walks about the room.

Cont. Mist.

31st.—Complains of languor and faintness; tongued furred; pulse quiet.

℞ Quinæ Sulph. gr. viij.; Acid. Sulph. dil. ʒss.; Inf. Gentian, c. ℥viiss.; Syr. Zingib. ℥ss. M. Cochl. larg. ij. t. d.

Feb. 2d.—Bowels not sufficiently relieved; ordered a wine glassful of the first aloetic mixture every morning; tongue covered with yellowish fur, but has proper taste, and relishes food; can move the limbs freely; no distortion of the mouth. To remove the fur from the tongue and improve the secretion, to take a small dose of blue pill and rhubarb every night, and continue the quinine mixture.

14th.—Tongue clean.

Sumat. Pil. noct. ter in hebdom. Cont. Quin.

Gets down stairs daily.

May 4th.—This patient has been gradually improving, and is now able to resume her duties as mistress of the family. The left arm is still weaker than the other, and will not bear prolonged exertion; but she can sew, &c. with considerable facility.

August.—Health good; takes no medicine but an occasional aperient.

Case III.—John Took, æt. sixteen years, a strong farming lad, was taken suddenly ill after a club feast on the 6th of June, 1840. My assistant saw him at 10 P.M. He was alternately drowsy and delirious, and could not be made sensible of what passed around him. Pulse small; extremities cold; head and face hot and flushed. Ordered purgatives, and mustard poultices to the feet. Next morning more flushed in the face, and comatose, but pulse still very small and compressible. Could not be made to swallow his medicine; and was very boisterous when roused. This was the report given me by my assistant, who thought he ought to have bled him, but was afraid to do so from the state of the pulse. I recommended a large blister to the nape of the neck, and a purgative clyster. At night I went to see him, and found that after the blister had been on a few hours he fell asleep, and had remained quite quiet till about an hour before I arrived, when he became sensible, dressed himself, and said he did not recollect anything about being ill. When I saw him he was down stairs in a chair, and talked cheerfully and rationally. Skin warm, especially about the head; although he said if he went near the door he was inclined to become chill. Pulse rather full. Drew about eight ounces of blood from the arm, and gave aperients. Next day much better; no disturbance about the head; bowels well relieved.

9th.—Out for a walk when called upon, his friends stating that he was quite well again.

Case IV.—A young man was attacked on the 10th of June, 1840, with the following symptoms:—He had been employed all the previous day and night serving customers with beer, &c., at a public house where a club feast had been held. He dined with the club, ate heartily, but did not drink much beer. Early in the morning he was employed to cart faggots, but felt unwell, and was sick before he began. After working a short time he was seized with pain in the back and the pit of the stomach, and was obliged to be carried home. A surgeon, who chanced to be near, bled him and gave him salts. I saw him about an hour after the bleeding: he was become very drowsy; face flushed; pulse round and soft; surface warm; breathing easy. Attendants said he had complained much less of pain since the bleeding; but when I roused him he complained of pain in his stomach. I requested him to rise up in bed, which he did very slowly, and with difficulty; but when up could make a full inspiration without pain. Fell into a dose again as soon as left to himself. I thought it possible that his drowsiness might be the consequence of fatigue, and therefore did not repeat the bleeding. In about two hours his father came to tell me he was quite insensible, and could not speak; was very hot, and frequently rolled his eyes about.

Ordered a large blister to the pit of the stomach, and senna and salts every three hours.

11th, A.M.—Still very drowsy, and difficult to rouse. Skin warm; pulse feeble. Warm bath, after which the bowels acted for the first time.

12th.—Sensorium much oppressed; eyes frequently half opened, turned upwards, and moved from side to side. Pulse large, and inclined to double beat: perspiration profuse about the head and face: bowels not open. Cut his hair off, and applied vinegar cloths to the head. Roused him sufficiently to make him swallow half an ounce of castor oil, the taste of which greatly displeased him, and he afterwards complained of being sick.

Empl. Lyttæ Ampl. nuchæ. Mist. Sennæ 4tis horis.

13th.—Answers questions much more readily than yesterday, and says he is quite free from pain. Blister drawn well. Head cool, still covered with wet cloths: pulse 72, regular. Still doses when left alone. Bowels not open.

Adhib. Enema. Pil. purgant. ij. 4tis horis.

15th.—Bowels well relieved. Convalescent.

CASE V.—Mrs. W, æt. fifty-eight, a lady of nervous temperament, and rather full habit, the mother of a large family, was seized, whilst at work in her garden, on the evening of the 14th of June, 1838, with numbness and loss of power in her left leg, which, after a few minutes, increased so as to oblige her to fall to the ground. The day was warm, and she had exerted herself sufficiently to cause profuse perspiration. With a little assistance she was soon sufficiently recovered to walk into her house, and upstairs to bed; but on the following morning, finding that the numbness of the limb remained, she requested my attendance. Two rhubarb pills had been taken, and had acted freely on the bowels.

I found her in a state of high nervous excitement, with partial paralysis of the left arm and leg; the left side of the face was also slightly affected. Pulse frequent and jerking; tongue rather foul: no pain in the head, or intolerance of light. Ordered a composing draught, and saw her again in a few hours. No headache: pulse steadier, but full. Limbs in same state.

Venæsectio ad ℥xvj.; and small doses of calomel and opium every four hours.

16th, 10 A.M.—Complete paralysis of the left side; but no headache, or symptoms of inflamed brain. Skin perspiring: sensation in the affected limbs perfect: complains of sickness.

8 P.M. More nervous excitement, and pulse jerking. Slight power of closing the fingers of the left hand. Had some sleep since the morning. Her son, a medical practitioner, came to see her, and advised more bleeding.

V. S. ad ℥xvj. Sumat. Calom. gr. j.; Extr. Col. c. gr. iv. 4tis horis.

17th.—No amendment in the state of the limbs; left side of the face paralyzed; pulse quiet; bowels not open.

Haust. Sennæ 4tis horis.

Stomach irritable, but very little vomiting.

P.M.—Bowels acting freely, and has had some sleep.

18th.—Bowels very open; more depression than yesterday; no return of power in the paralyzed parts.

Applic. Empl. Lyttæ Nuchæ.

19th.—Bowels acted freely in the night. Strong mercurial fœtor in the breath, and ulceration of the lining membrane of the mouth.

Omit Pil. et utat. Garg. Chlor. Calcis.

22d.—Has taken a little meat broth, and enjoyed it; no power in the paralysed limbs; got some comfortable sleep in the night.

25th.—Mouth still sore; bowels act daily without medicine; appetite improved; takes milk and meat broth.

28th.—Can move the thumb and forefinger of the left hand, and draw the leg a little up in the bed.

30th.—General health improving; more movement in the fingers of the left hand; takes meat broth freely.

Nothing more of importance occurred for some time. As the general health improved, the state of the limbs improved also; and in course of time the patient could walk across the room with little assistance, and could use the forearm sufficiently to amuse herself with knitting. She paid great attention to diet, and rode out frequently in her carriage.

On the 9th of December, 1838, I was called in again, on account of pain and of heaviness in the head. Tongue furred; appetite failing; occasional chills followed by heat; bowels not so much open as usual; pulse excited, beating 120 in a minute; no giddiness; no tinnitus.

℞ Magn. Sulph. ℥ss.; Inf. Sennæ, Dec. Aloes, c. aa. ℥ij. M. 4ta. part. 4tis horis. Pediluvium.

10th.—Bowels well relieved; head better; pulse 108 in the morning, 98 in the evening; no alteration in the state of the limbs.

Cont. Mist.

11th. — Head still uncomfortable from heaviness, but not painful; pulse 96.

Cont. Med. et applic. Hirud. iij. pone utramque aurem.

12th. — Head better; pulse 90; bowels relaxed; tongue cleaner.

Applic. Hirud. iij. pone utr. aurem; Cont. Mist.

14th.—No uneasy sensation in the head. No further treatment required at present.

Several times during the next year this lady had attacks of nervous excitement and disordered stomach, and was occasionally bled to the amount of a few ounces, which generally afforded temporary relief; but the state of the limbs remained much as usual until the 6th of December, 1839, when, after having ascended a steep flight of steps, chiefly by her own exertions, she suddenly perceived a difficulty in speaking, and in a few minutes her articulation became very imperfect, and the paralytic limbs more feeble than before. Pulse frequent and jerking; mouth more drawn to one side. She was bled to eight or nine ounces, and took senna draughts. In the evening she felt better, and the bowels had acted freely. The blood was remarkably tenacious and sizy, and adhered to the fingers like glue*.

This attack was followed by more debility both of body and mind. When depressed more than usual, Spirits of Ammonia and Camphor mixture afforded relief, and a light bitter tonic was prescribed for general use.

In May 1840, the mental powers of my patient were much diminished, and her memory much impaired. There was an appearance of languor and listlessness which I had not seen in so great a degree before, but I ascertained from the family that it had been gradually increasing for several months, and they all observed how much she was altering for the worse.

On the 18th of June last this lady and her family were thrown into the greatest affliction by the sudden death of her husband. He was devotedly attached to his family, and equally beloved by them: he had been her constant attendant and nurse ever since the commencement of her illness, and died in the act of dragging her about in a small hand carriage. It was impossible to anticipate the effect such a severe shock would have upon her in her debilitated condition, but I feared it would be more than she could bear, and that she would sink under it. The immediate effect was to stupify her; she sat by the corpse unmoved, and could not be made to believe that he was really dead. She witnessed the sorrow and distress of her children, but give vent to no expression of feeling herself for many hours. She gradually, however, became convinced of the melancholy truth, and, strange to say, has since considerably rallied from her previous state of mental inactivity, and is now altogether better than she had been for months. She appears to feel that she is now required to make more exertion, and has, to a certain extent, been wonderfully enabled to do do.

From the cases above narrated, and from others of a similar nature, I have been led to draw the following inferences:—

1. That apoplectic and paralytic affections may take place in an extreme degree without organic disease of the brain.

2. That they often occur from other causes than pressure on the brain.

3. That bleeding, so far from being always necessary, is in many instances prejudicial.

4. That the effort of vomiting is not so prejudicial in these diseases as is generally supposed.

5. That counter-irritation, both external and internal, is a valuable means of affording relief to the symptoms immediately succeeding the attack.

1. *Apoplectic and paralytic affections may be severe without there being organic disease of the brain.*

In case 1, the first attack seemed to be the result of effusion and pressure on the brain; but it is clear that the 2d and 3d attacks, although much more severe at the commencement, could not have depended upon such a cause, or recovery would not have been so rapid and perfect. It is probable, therefore, that the first as well as the others arose from disorder of function, and not from organic disease. For the same reasons, the case of Hemiplegia (No. 2) must have arisen from functional disturbance of the brain, and not from effusion of blood or serum.

"I have met with many instances in which it has been proved that not only a general derangement of the functions of the nervous symptoms producing apoplexy, but also partial effects of a similar nature, causing hemiplegia and paralysis, may take place, without any visible change of structure in the brain." —*Abernethy on Local Diseases.*

2. *These diseases often occur from other causes than compression of the brain.*

In the second attack, case 1, what are generally considered symptoms of compression were very marked; but had pressure been the cause of them, how could recovery have taken place so rapidly, and relief have been afforded immediately on the stomach rejecting its contents? This leads me to make a few remarks on the effects of pressure on the brain. I have often witnessed pressure on the brain from external violence without the symptoms attributed to compression. In the 18th volume of the Medical Gazette, a remarkable case is reported by Mr. Johnson, where a boy presented himself at the Norfolk and Norwich hospital with the thick part or screw of the breech pin of a gun firmly impacted in the frontal bone, the part which fastens on the stock projecting like a horn. The patient had no symptoms of compression till the pressure was removed by the extraction of the foreign body. In the same report are two other cases of fracture of the skull with depression to the extent of the thickness of the cranium, without symptoms of compression.

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* Boerhaave mentions a thick glutinous blood as a cause of apoplexy.

A little boy in my neighbourhood fell from a horse, receiving a severe wound in the forehead, and another at the back part of the head, where the cranium was fractured and depressed to the extent of the thickness of the bone. He was stunned by the blow at first, but soon recovered, without symptoms of compression, and without the depressed portion of bone being raised. He now enjoys good health, the pressure on the brain still remaining.

A child was affected with congenital hydrocephalus; the head gradually enlarged, until, at the age of 8 months, it had attained the following dimensions, viz.:—Circumference, 24½ inches; from ear to ear over the top of the head, 15¼ inches; width between the frontal protuberances, 4¼ inches.

At the age of 13 months the size of the head was as follows:—Circumference, 26 inches; from ear to ear over the top of the head, 18 inches.

During the whole period referred to, this child had never been really ill. The appetite was good, and its senses unimpaired. Bowels were regular and healthy, and at the age of seven months had cut two teeth without difficulty. At the time of the last measurement of the head, I find the following report in my case-book:—"The child is much the same as to general health, its faculties are still tolerably perfect, its temper is cheerful, and it knows its attendants perfectly well. The body is more emaciated. About a week after this the child died suddenly with slight convulsions, but had not previously been worse than usual."

It is thus beyond a question that pressure upon the brain may exist to a greater extent than can be imagined to occur from loaded blood-vessels, without apoplectic or paralytic symptoms being produced. Compression is not the only cause capable of producing those symptoms, and I am inclined to believe that such a cause does not exist in a majority of the cases of apoplexy that present themselves.

3. *Bleeding, so far from being always necessary, is in many instances prejudicial.*

I am much inclined to the opinion that apoplectic and paralytic seizures are frequently diseases of debility, especially in persons advanced in years; and that the brain does not well bear detraction of blood in addition to the shock of the attack.

Celsus says, "Si omnia membra vehementa resolute sunt, sanguinis detractio vel occidit, vel liberat," and again, "Post sanguinis missionem, si non redit et motus et meus, nihil spei superest."

Hippocrates says that bleeding, except it relieves, kills. Boerhaave mentions a *cold phlegmatic* cause of apoplexy. Galen says "Paralyticorum parvus pulsus, languidus, tandusque est. Nonnullis rarus quoque, aliis creber, sed nonnihil inordinatè intermittens. Est enim parvus et tardus, *quia morbus est frigidus:* languidus, quòd *facultas infirmior*. Comitialium et attonitorum pulsus sunt similes." "Quorum trium morborum, frigidus, crassusque: aut omnino viscidus humor est causa."

In all cases of apoplexy or paralysis, in which the cause is dubious, "and such, on the first examination of them, the majority of them will probably be, it seems right to try the effect of correcting disorder of the digestive organs, with a view to alleviate nervous irritation, before we proceed to those severer methods, which the belief of the existence of organic or vascular disease in the brain would induce us to institute. For if blood-letting and counter-irritation be employed, in order to diminish vascular action; or if mercury be used to some extent, in order to induce the absorption of deposited substance; these measures must aggravate that disorder of the general health, upon which, in many instances, the nervous affection depends."—*Abernethy on Local Diseases.*

In the first attack, case 1, bleeding was carried to some extent, and the recovery was very tedious, a diminution in the functions of the nervous system remaining for a considerable time. In the 2d and 3d attacks, in which bleeding was not resorted to, the recovery was rapid and complete.

In the case of hemiplegia (case 2) the patient was several times in the course of her illness affected with symptoms indicating debility, which were relieved by tonics; and I am much inclined to think, if bleeding had been practised, the cure would have been more tedious and less perfect.

In case 5, in which bleeding was several times resorted to, the paralysis has become permanent, and frequently the general powers of the body have declined. The excitement caused by the heavy loss the patient sustained in the death of her husband, has produced amendment in her condition.

In case 4, in a young subject, bleeding was followed by coma, but whether as a consequence or not I cannot pretend to determine, as I did not see the state of the patient before he was bled. I merely record the fact. In case 3, the boy had recovered from the symptoms of disordered brain *before he was bled*, although probably according to the general opinion he was in circumstances especially demanding abstraction of blood.

4. *The effort of vomiting is not so injurious in these diseases as is generally supposed.*

The 2d and 3d attacks in case 1, were very much benefited by it, and no prejudicial effect followed.

5. *Counter-irritation, external and internal, is a valuable means of affording relief to the symptoms immediately succeeding the attack.*

By *internal counter-irritation*, I mean irritation produced through the medium of the stomach and bowels, by emetics, purgatives, or nauseating medicines. I well remember, during my apprenticeship, being sent to visit a poor woman in Norwich, who had been taken in a fit. I found her apoplectic; and owing to a suspicion of her symptoms having been occasioned by taking laudanum, (which however was afterwards proved to have been unfounded,) a fellow pupil and myself proceeded to empty her stomach by means of the stomach-pump. The stimulus caused by the introduction of the tube, and injection of water into the stomach, roused her from her state of insensibility, and she quickly recovered. As a proof of the occasional good effects of external counter-irritation, in addition to what appears from the cases above recorded, I shall briefly refer to a circumstance which occurred at the Norfolk and Norwich hospital, during my residence in that institution. A man who had been the subject of general dropsy, and in a very weak condition, became insensible, and had all the symptoms of serous apoplexy. No bleeding could be practised on account of the debility present; neither, to the best of my recollection, could he be made to swallow anything. The physician under whose care he was placed ordered blisters to be applied in succession, I might say, almost all over the body. On the back of the neck, on both arms, both thighs and legs, soles of the feet, and I think on the top of the head. In two or three days the patient regained his senses, and recovered from his apoplexy.

A question of great importance remains to be discussed, namely, whether there are symptoms generally present in cases of apoplexy and paralysis, which, by strict observation, may enable us to distinguish clearly between those which require bleeding, and those which would be better treated without it. I frankly confess my inability to answer it satisfactorily, and find that others have also failed in doing so. If I may be allowed to give an opinion, I should say that bleeding is unnecessary or prejudicial where the patient is 60 years of age or upwards; where the pulse is feeble, very frequent, intermitting, slow, or large, and inclined to double beat, (I have always found a pulse with double beat indicative of a state of system best relieved by diffusible stimuli,) where the respiration is laboured and accompanied with *cold* perspiration; where there is great mobility of the nervous system with weak muscles, whether the body be thin or *corpulent;* when the attack comes on soon after a full meal, or after great bodily or mental fatigue.

A quick, wiry, resisting pulse, flushed countenance, warm perspiration, noisy breathing, and a tendency to spasmodic muscular contraction, occurring in persons of an earlier age, seem to point out a necessity for resorting to abstraction of blood; but I believe there will be less danger in not bleeding in any case, than in always having recourse to it, where there are *some* circumstances indicative of the propriety of its employment.

I am fully aware that the observations that I have offered upon this most interesting subject are very imperfect, and, from my limited experience, cannot be conclusive either as regards the nature or the treatment of the diseases under consideration. My own mind, however, is strongly impressed with the truth of the inferences I have drawn, in opposition to the more prevailing opinions of the day. If they be correct I shall be glad to find them confirmed by those who, from more extended experience, can form a better judgment; and if erroneous, I trust I may, from the same source, receive such instruction as may enable me to treat in the most effectual and best manner, those cases that may in future be submitted to my charge.

TREATMENT OF CYNANCHE.

To the Editor of the Medical Gazette.

Sir,

Allow me to place before the readers of your valuable journal, a few more cases of cynanche tonsillaris, treated by guaiacum. Permit me at the same time to correct an error of considerable importance which occurs in the *recipe* given in my former communication on the subject, that appeared in the Medical Gazette of 30th October last: you have there inserted "Tr. guaiac," instead of "Pulv. guaic." Now, if any person should prescribe the medicine according to the recipe as it appeared, I have not the slightest doubt, but that owing to the small quantity of the drug which would be exhibited, they would fail to obtain the beneficial results which it has produced in my hands.

Before relating the following case, I would take the opportunity to express my thanks to Dr. Badeley, of Chelmsford, for his confirmatory remarks regarding the use of the remedy under consideration, and also for the flattering manner in which he takes notice of my paper, in his communication to the Medical Gazette of Nov. 13th. I regret that his success has not been equal to that which I have experienced. I am inclined to think this is owing to the small dose of the guaiacum which he orders: the *recipe which he gives* is not more than half the strength of my prescription; consequently it cannot be expected to have the same effect.

Before I employed guaiacum in the treatment of these cases, I was in the habit of using the means which Dr. Badeley recommends, viz. free scarifications of the tonsils, leeches to the throat, emetics, purgatives, diaphoretics, and in some instances general depletion, with considerable benefit, but by no means with universal success. I have, however, found that by the use of guaiacum alone I am able to effect a cure, with greater celerity and certainty, and with much less annoyance and pain to my patients, than by the means above enumerated.

I find that profuse perspiration generally follows the use of the medicine. In some cases nausea is excited, particularly if I prescribe the powder, as I sometimes do. Purging has also been occasionally produced, but in many instances so very little effect occurred in this respect that I have found it necessary to administer purgatives in order to procure free discharges from the bowels.

Case I. June 16th, 1837.—Henry Sterling, æt. 28 years, a stone-mason, of a stout habit, sanguine temperament, complains of headache and severe pain of throat, increased on deglutition: is unable to swallow anything, from the acuteness of the pain. Right tonsil very much swollen, of a deep red colour; the uvula is also inflamed; tongue white and furred; thirst; pulse 98; skin hot; was seized with pain of throat about one o'clock this morning. He has been labouring under a slight attack of bronchitis for four or five days. Has taken of his own accord two ounces of sulph. magnes. which is now operating.

The tonsil was freely scarified, and 12 leeches ordered to the throat, and an emetic of Ipecacuanha and Tart. Antimony administered.

17th.—Ten leeches, bled well; the emetic operated freely; he had considerable mitigation of pain and other complaints for nearly three hours, when they returned with their former violence, and have continued since. Pulse 120. Right tonsil presents the same appearance as at noon yesterday: that of the left side is also inflamed.

℞ Pulv. Guaiac. ʒiij.; Mucil. G. Arab.; Syrup. Simpl. ℥ij.; Aq. Cinnamon,, Aq. Puræ, aa. ℥iv. M. et solve. Capt. ℥ij. 4ta. q.q. h.

18th.—Had only taken two doses of his medicine when pain and difficulty of swallowing began to subside; these complaints are now nearly gone. Headache completely relieved; tonsils much less in size; redness almost gone; tongue cleaner; has taken some breakfast; skin covered with a profuse perpiration; pulse 66. No dejection since yesterday afternoon.

Cont. Mist. Gusiac. et Habt. ℞. Pulv. Jalap., gr. xxv.; Submur. Hydr. gr. viij. M.

19th.—Complaints gone; right tonsil slightly enlarged; bowels freely moved.

This is the first case in which I employed the guaiacum, and the result was so flattering, that I resolved to have recourse to it in the next that came under my notice, which shortly occurred and forms the subject of

Case II. June 29th, 1837.—John Stewart, æt. 48 years, a cotton spinner, of a relaxed frame, dark complexion, complains of severe headache and pain of the throat; pain is greatly aggravated on attempting to swallow; face flushed, tonsils highly inflamed, and so much enlarged as almost to meet in centre of throat; tongue furred; pulse 117; bowels said to be regular; was seized yesterday forenoon. Has been frequently attacked in a similar manner; on these occasions he has been bled both locally and generally; has had blisters applied. These means were sometimes attended with relief, at others they failed to procure the slightest benefit.

Habt. Pulv. Guaiac. ʒss. 6ta. quàque horâ, ex decoct. Avenæ. q.s.

30th.—Pain of the throat greatly better; can swallow with tolerable ease; headache gone; tonsils less red and swollen; pulse 96; feels sick and inclined to vomit; has had two loose stools.—Cont.

July 1st.—Has no pain of throat today; takes food and drink with the greatest freedom; pulse 70; tonsils natural here, but rather enlarged; nausea still continues; bowels freely moved. Intermit. medicament. This man has had several attacks since the above, in all of which he has been cured by the use of the mixture prescribed.

Case III.—August 21st, 1839, John Hamilton, æt. 39 years, a carpenter, of stout make, low stature, and dark complexion: has both tonsils very much inflamed; cannot swallow his food from excessive pain of throat; complains of severe headche; pulse 120; skin hot and dry; tongue furred. Was seized last night as he was coming home from his work. Had a similar attack about three years ago, when I bled him from the arm, applied leeches to his throat, and made very free scarifications of tonsils with considerable benefit; but in spite of these means suffocation eventually occurred.

℞ Pulv. Guaiac. ʒiij.; Mucil. G. Arab. Symp. Simpl. aa. ℥ij.; Aq. Cinnamon. Aq. Puræ. aa. ℥ij. M. et solve Capt. ℥ii. 6ta. q.q. hor.

22d.—Is much better; inflammation of tonsils much reduced, but they have not resumed their natural appearance; has taken his dinner with very little annoyance from throat; pulse 86; has had four large dejections.—Cont.

23d.—Is quite well.

Intermit. Medicament.

Case IV. Sept. 30th, 1839—John Hart, æt. 24 years, a stout farm servant; has both tonsils much inflamed, he has great pain of throat, particularly on deglutition; headache; tongue furred; skin hot; pulse 108; bowels said to be regular. Was seized 36 hours since, after exposure to cold.

Habt. Pulv. Guaiaci. ʒss. ex decoct. Avenæ. q. s. 6ta quàque horâ.

Oct. 2d.—Is free from complaint; tonsils slightly enlarged, but redness completely gone: medicine produced sickness, and a profuse perspiration: bowels were twice moved yesterday, and once to-day.

Intermit. Medicament.

Case V. March 21th, 1840.—Wm. Taylor, æt. twenty-seven years, grocer, a stout active man, complains of severe pain of throat, much increased on deglutition; velum, pendulum palati, and uvula, much inflamed; left tonsil very red and enlarged; right tonsil red, but not swollen; headache; skin hot; pulse 96; breathes easy.

℞ Pulv. Gusiac. ʒiij.; Mucil. G. Arab. Syrup. Simpl. aa. ℥ij.; Aq. Cinnamon. Aq. Puræ. aa. ℥ij. M. et solve. Sumt. ℥ij. 4ta. q.q. h.

12th.—Pain and enlargement of tonsil gone, as is nearly the inflammatory appearance of fauces; pulse 76; bowels freely moved.—Cont.

14th.—Complaints cured.

Intermit. Medicament.

Case VI. Sept. 10th, 1840.—Miss E——y, æt. nineteen years, a healthy young lady, of fair complexion, and lively manner, complains of headache and inability to swallow, from pain of throat, particularly left side; left tonsil enlarged, and of a deep-red colour; right tonsil slightly red, and swollen; tongue very much coated with a dirty brown fur; pulse 118, and skin hot; bowels have been opened by some magnesia, which she took last night, when she was first attacked with chilliness, and pain of throat.

She was ordered the mixture prescribed in the last case, and, on the 13th, was free from all complaint.

Case VII. 19th. — Mrs. C., æt. twenty-four years, a stout lady, complains of pain of throat, and severe headache; face flushed; both tonsils, particularly right one, enlarged and red; velum, pendulum palati, and uvula, of a similar appearance; tongue white and furred; rigors; bowels confined; catamenia regular.

> Habt. ℞ Pulv. Guaiaci. ʒv.; Mucil. G. Arab. Syrup. Simpl. aa. ℥iij.; Aq. Puræ. ℥xij. M. et solve. Capt. ʒij.; 6ta. q.q. hor.

21st.—Throat well.

Intermit. Medicament.

Case VIII. Nov. 21st, 1839.—A. M'Dougall, æt. twenty-eight years, of low stature, sallow complexion, black hair and eyes, complains of severe pain of throat, attended with inability to swallow; headache; rigors. On examining throat, tonsils and uvula present a very inflammatory appearance; tonsils touch uvula on both sides; pulse 108; skin hot, and dry; tongue covered with a thick yellow fur: was attacked two days since.

> Habt. Pulv. Guaiaci. ʒss.; ex decoct. Avenæ, q. s. 6ta quâque hora.

23d.—Cured.

Case IX. Nov. 28th, 1838.—David Wilson, æt. thirty-four years, complains of headache; pain of throat and back; has great difficulty in swallowing; tongued furred; mucous membrane of fauces very red; tonsils greatly enlarged, as is also uvula; pulse 110; rigors; skin hot; has had bowels freely moved by Ol. Ricini; has been ill for upwards of two days. He was ordered the powder as in last case, and in two days was perfectly well.

I will not occupy much of your space by any lengthened observations, but conclude by merely remarking that my object in bringing the subject under the notice of the profession was to show the beneficial results which I have experienced from the use of the drug in the disease in question—an affection in which I have every reason to believe it is but very little employed by practitioners. I by no means claim any thing like infallibility for it. I had two failures in my own practice, as I stated in my former communication; and I have no hesitation in asserting that such will occasionally occur, particularly in cases where suppuration has taken place previous to its administration: in instances where the patient cannot swallow it in sufficient quantities to produce a salutary effect; and many other circumstances connected with particular cases may occur to prevent it producing any sanative influence. But when timely exhibited, and in full doses, I am convinced it will prove signally successful in a vast majority of cases.—I am, sir,

Your obedient servant,
Joseph Bell,
Surgeon.

Banhead, Dec. 10th, 1840.

PRODUCTION OF MESENTERIC HERNIA.

ADDENDUM TO DR. RUMSEY'S PAPER IN LAST NUMBER.

To the Editor of the Medical Gazette.

Sir,

There might seem to be some considerable difficulty in the way of a large intestinal tube insinuating itself through a small opening in the mesentery, where there was no known power to impel, and the mind, therefore, would be too incredulous of the occurrence. But let it be recollected that the expansion of mesentery may be in a certain plane, the intestine in contact with it, and covering the morbid opening. Such motions of the body might take place as had a tendency to raise the plane, and produce a vacuum below, thus receiving, by a strong natural tendency, the first descent of the hernial mass. The same principle might, by similar repeated motions, propel it until it had reached its irremediable position.

By inserting the above you will oblige, sir,

Your obedient servant,
Nathaniel Rumsey, M.D.

Henley, Dec. 21, 1840.

ANALYSES AND NOTICES OF BOOKS.

"L'Auteur se tue à alonger ce que le lecteur se tue à abréger."—D'ALEMBERT.

Spinal diseases: with an improved plan of cure. Including what are commonly called nervous complaints, and numerous examples, from upwards of one hundred and fifty cases. By JOHN HEY ROBERTSON, M.D., Surgeon of the Faculty of Physicians and Surgeons, Glasgow; Licentiate of Apothecaries' Hall, London; Member of the Glasgow Philosophical, and Westminster Medical Societies, &c. &c. Glasgow, Edinburgh, and London, 1841. 8vo. pp. 160.

CONTRARY to our usual custom, we have given the title-page at length, as it is, in some measure, a critique on the book. When our readers peruse it they will say, "the book was written for the laity;" and their guess will not be a bad one; for in truth it is partly addressed to the profane. Yet there are some sensible observations in the essay, by which many members of the profession may profit, but of which the reception will be somewhat damped by the prodigious self-gratulation and unvarying success of the author.

The chief points insisted on by Dr. Robertson are two; first, that phthisis and other diseases may be simulated by disorder of the spinal nerves; and, secondly, that the symptoms are to be relieved by counter-irritation applied to the tender part of the spine.

Both these points have been illustrated of late years by other writers, particularly by Dr. Wm. Griffin and his brother, in their treatise on the functional affections of the spinal cord. Our author's favourite remedy is dry cupping, which he administers by means of large glasses, varying in capacity from six ounces to eighteen to twenty. Occasionally he uses acupuncture. He disapproves of the steel stays worn for curvature of the spine; and prefers a corset made with a piece of ash-wood covered with leather, and with three straps of strong linen "put across it at certain distances, with buckles, and shoulder-straps, also with buckles; the highest strap buckled quite loose above the breasts in the female, the other two at distances lower down." (p. 99.)

On the whole, we strongly approve of counter-irritation in its milder forms, in the treatment of spinal irritation, and a host of anomalous pains which have scarcely a place in the nomenclature of medicine; but we should be glad to see the statistics of the practice, and are not much edified by the details of infallible success.

Remarks on the Surgical Practice of Paris, Illustrated by cases. Being a thesis, to which a gold medal was assigned by the Senatus Academicus of the Edinburgh University at the graduation of 1840. By W. O. MARKHAM, M.D. London, Edinburgh, and Dublin, 1840. 8vo. pp. 114.

THE little work before us is the fruit of some months' residence at Paris. It shows a spirit of observation, and much industry, and makes us augur favourably of Dr. Markham's future exertions in the domain of medicine. The picture which he draws of the surgical practice of the Parisian hospitals is, on the whole, extremely unfavourable. When we hear that in one winter Dupuytren lost twenty-one out of twenty-six amputations below the knee; or, that "the same sponge which cleans a bubo or a chancre at one bed is carelessly rinsed, and then employed to dress a stump at the next, and in the same manner makes the circuit of the ward," we are tempted to ask whether the Hôtel Dieu is an institution for the preservation of life, and whether the poor would not have a better chance if attended at their own homes?

We do not cite our author's critiques on the practice of individual surgeons, as he confesses that they are the opinions of one who is still young in the art; and we feel sure that a longer stay at Paris would have cleared up many of his doubts and difficulties.

We do not think that a few months' residence in France entitles a man to say "grave accidents," when he means "serious symptoms." We might mention other phrases and sentences requiring correction; but a word is sufficient to the wise.

Our author has omitted an index, or table of contents; and instead of the unvaried running title, it would have been better to put one which changed with the subject.

MEDICAL GAZETTE.

Friday, December 25, 1840.

> "Licet omnibus, licet etiam mihi, dignitatem *Artis Medicæ* tueri; potestas modo veniendi in publicum sit, dicendi periculum non recuso."
>
> CICERO.

MEDICAL REFORM.

We last week gave insertion to a paper on the subject of medical reform, which has just been issued by the College of Surgeons in Edinburgh, and rumour says that there have been some deliberations on the same subject not a hundred miles from home. It would thus appear that the stir which has been made during the last year or two in various quarters is likely to lead to some beneficial results: not in the passing of Mr. Warburton's absurd bill, or any thing the least like it, but by leading to certain changes in the existing corporations, which, but for this "pressure from without," would probably not have been made. The great difference between our contemporaries and ourselves upon this subject is, that while they imperatively demand the utter annihilation of the existing institutions, we only require certain changes which, if rigorously effected, would, in our humble judgment, perfectly adapt them to the necessities of the case.

There are two different points of view in which the contemplated changes are usually regarded. The first is, as to the propriety of any diminution in the number of the licensing bodies; and the second refers to the expediency of certain modifications in the polity of the various corporations.

We have in Great Britain and Ireland a great number of establishments possessing the right of licensing practitioners, each requiring for this purpose its own particular education, and each conferring various degrees of power and privilege. Now we are not, and never have been, able to discover any advantage which can accrue to the public from this arrangement, and it appears to us that it would be much better were such power of examining and granting licenses to practise confined to the three capitals—London, Edinburgh, and Dublin. The number of Bodies in Scotland especially, exercising the right of examining and granting licenses to practise, is absurd, and we may instance the local privileges enjoyed by Glasgow—set forth in a recent number of this journal, as preposterous in the extreme.

But as we think it expedient that the licensing bodies should be limited to the capitals, so it further appears to us no more than reasonable to require that there should be such an amalgamation of views and arrangements in regard to preliminary education, and the standard of knowledge required, as to enable the possessor of a diploma in any of the establishments to procure his recognition as a licensed practitioner in any part of the empire; or, to be a little more precise, a man who had passed the College of Surgeons in Edinburgh should be recognized as a legal practitioner in his own department in any part of the kingdom; and so likewise of the members of the Colleges of London and Dublin. We are aware that some mutual arrangements approaching to this have been made, but it ought to be based on an enactment of the legislature, not the private understanding of the several Colleges. So, also, with respect to the Physicians: not that we would have the mere degree (granted as it is in Scotland at much too early an age) carry with it any privilege beyond what it already has—but we would have an equalization of their educational schemes between the Colleges of Physicians in Edinburgh and London, and an admission of their members to like privileges in all parts of the kingdom. That there might be difficulties in accomplishing this we doubt not: neither, however, do we doubt that the strong arm of the legislature would be able to overcome them.

With respect to the corporate bodies themselves, the great and still unreformed evil in the London Colleges is the vicious principle of self-election; while in the Society of Apothecaries the two greatest blemishes are the system of apprenticeship and the mode of remuneration.

The most obnoxious instance of self-election, because affecting the greatest number of individuals, is that afforded by the Council of the College of Surgeons. The sentiments which we expressed on this point ten years ago remain unchanged.

"It matters not what they do—were they of such noble natures, that, like Hotspur, their honour

> ———" stuck upon them as the sun
> In the grey vaults of heaven;"—

yet would the Council of the Royal College of Surgeons of London have no honour rendered to them so long as those most forbidding and unconstitutional epithets, "self-elected," and "irresponsible," could justly be applied to them. We know not a more striking illustration of the different estimation in which men are held, according to the medium through which we view them, than is afforded in the present instance. What, then, is it in the atmosphere of Lincoln's-Inn-Fields which thus either changes or corrupts the nature of those who breathe it, or so perverts the moral optics of those who look upon them? It is nothing more than this, that a governing body, self-elected and irresponsible, is repugnant to the spirit of the times; and were their acts those of perfect wisdom, and their purity immaculate, yet would they fail to please: so long as their members are brought together by no exercise of any general privilege and so long as their proceedings are veiled from the public eye, so long will the Council of the College of Surgeons fail to acquire popularity, however irreproachable their conduct may be *."

Now we do not mean to deny that the selections made have generally been proper; but in some instances they have not: and some recent proceedings in reference to the ulterior election into the Court of Examiners would lead us to suppose the majority of the Council do not in this respect differ from ourselves. But were it demonstrable that the best, and none but the best, were always chosen, still we protest against the principle; and we feel assured that the members of the College generally will never be brought to look upon the governing body, as at present constituted, in the same light in which they would regard them if they owed their elevation to the results of a general election.

So also with respect to the College of Physicians; though here the self-election excites less general dissatistion, because a much smaller portion of the medical community is implicated. In Pall Mall, indeed, we find two instances of the obnoxious principle. The Fellows elect those who are to be admitted into their own body, and the President is chosen—not by the College at large—not even by the Fellows—but by certain officers called the Elects, amounting to seven in number, and who are themselves nominated by the President. This last very unpopular and most objectionable arrangement is embodied in the charter, and out of the power of the College to alter; but not so the former. The mode of admission into the Fellowship has been altered at various times, and recently was most mate-

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* Med. Gazette, April 9, 1831.

rially improved, by making it an election from out the general body, and not a mere matter of course to the holders of an English degree. But here also we have already recorded opinions which remain unchanged.

"On a select committee of the Fellows devolves the duty of choosing the Censors, and what is still more, of selecting the *Licentiates*, who are to be honoured by an admission to the Fellowship. This is one of the grounds on which we apprehend that the constitution of such a Council will be objected to: it will be said, and with much show of justice, that it perpetuates the system of self-election, the grand point against which the most violent opposition is every day and constantly directed, in discussing the organization of the corporate bodies. When we find that the determination of the *quot et quosnam* of the Licentiates, who are annually to be co-opted among the Fellows, is thus committed to a body of the Fellows themselves, we cannot but doubt whether such an arrangement can or ought to give general satisfaction."*

We have on former occasions given the College of Physicians credit for their liberality in progressively conforming to the spirit of the times, and we now repeat, that there are none of the Corporate Bodies in which greater improvements have been made; but we most earnestly entreat them to consider, that the time has now come when they must go a step farther. The Licentiates must be acknowledged as members of the College, and be the parties to select from their own body those whom they consider most fit to be raised to the Fellowship. Let this be done, and they will find the measure more calculated to render the College popular than all those put together which they have previously adopted. So likewise of the College of Surgeons—they have done much—but they must do more. The first step is to place the election into the Council in the hands of the general body. In this respect the duty of the two Colleges of Physicians and Surgeons is analogous. But the Surgeons must not stop here: their brethren in Pall Mall are poor almost to bankruptcy; *they* have immense funds. Of those resources much has been devoted to public objects—but more than is becoming is still reserved for purposes which, if not strictly private, are at least unconnected with objects in which the general body of members take an interest.

Let the two Colleges adopt the suggestions we have made, and they need not fear the results of parliamentary or any other interference; for they would carry with them the esteem and co-operation of the numerous and respectable body which constitutes their members respectively in every part of the kingdom.

With respect to the general practitioner, the great points requiring reform are as we have remarked above; first, the system of apprenticeship which keeps him for several years most unprofitably employed before he enters upon his education, properly so called; and, secondly, the mode of remuneration, namely, that of charging for his medicines. The former is an evil which interferes greatly with his education in early life; the latter, a blot which remains permanent, and disfigures his whole career, tending, in spite of any thing he can do, to associate him with the tradesman. Many gentlemen among the general practitioners we are well aware know and feel this blemish in the system most keenly, and would do much to get rid of it. No Act of Parliament can avail them while this continues: the man who furnishes his employers with goods, and sends in his bill for them, never will hold the same place in society as is occupied by those members of the profession who furnish only their mental lore, and receive an honorarium in return. It is easy to declaim about it. It is easy to represent those who state the facts simply as they are, and who refuse to disguise the truth, as hostile to the general practitioner. It is easy, in short, to do precisely what the Editor of the Lancet does by us. But the facts still remain the same; and it is because we earnestly wish to see them altered, because we would have the general practitioners occupy the place to which, as a body, their education and attainments entitle them, that we are, and always have been, so earnest in denouncing the unmerited evils to which, according to the present system, they are exposed.

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* Med. Gaz. July, 1835.

The demand for amalgamating the several branches of the profession into one common class, of new creation, blending practitioners of every denomination in one general institution, does not appear to us to be either desirable or practicable. Were such a general fusion accomplished by legislative interference, the constituent parts forcibly brought together would speedily separate. The Baillies of the day would practise physic; the Coopers surgery, and clubs or societies would be established differing only in name from the institutions of the present day. But to some Board of reference—some head, of which the existing branches of the profession should serve as members of a common body, we should not object; and we do not conceive such a plan entirely hypothetical;—but more of this hereafter.

ILL-TREATMENT IN THE HENDON UNION.

Cases of the following kind have become too common to need much commentary; and, in the present instance, it is unnecessary to give the history of the case, as the jury have embodied it in their verdict. It may be useful to state that the inquest was concluded on the 17th inst., and that Hendon is a village seven miles from London.

"We find that the death of James Lisney was caused by an imprisonment in the gaol-room of the Hendon Union Workhouse, on the 4th and 5th days of the inclement month of November, 1840, under a sentence of the Board of Guardians of the Hendon Union; and the jury beg to express their opinion that it was not humane to imprison him without fire and on low diet, the said James Lisney being at the time in an infirm state of health, in consequence of a disease called diabetes."—*Times*, Dec. 18, 1840.

ABERDEEN INFIRMARY REPORTS.

[Continued from page 458.)

Cases and Observations by —— Laing, Esq.

One of the Surgeons of the Hospital.

CASE OF DELIRIUM TRAUMATICUM FOLLOWED BY SECONDARY HÆMORRHAGE FOUR WEEKS AFTER AMPUTATION.

P. J. æt. 50, was brought to the hospital at 9 P. M. of the 22d of May, 1840, with compound fracture, and lacerated wound of the left leg, caused by a loaded cart passing over it. Both tibia and fibula were fractured in the lower third, and three or four inches of the tibia protruded. There was also another extensive wound above the malleolus externus: the tendo-achillis and great blood-vessels were divided, and the ankle-joint laid open. He had lost a great quantity of blood during a journey of five miles since he sustained the accident, and it continued to drain away from the very extensive wounded surfaces, in spite of the application of the tourniquet, and pressure over the femoral artery over the os pubis. It was therefore resolved to amputate immediately, as the only chance of saving his life. The operation was performed by forming a flap four or five inches below his knee. Very little additional blood was lost.

May 23d.—Had no sleep during the night, though he took a dose of morphia towards morning; he complains of extreme pain in the stump; pulse 120; tongue dry; skin hot. 9 P. M. has been extremely restless and incoherent during the day; tongue brown and dry; pulse 130; bowels not moved; stitches removed from the stump.

℞ Calomel, gr. v.; Opii. gr. i. formâ pilulæ horâ somni, et Ol. Ricini. ss. cras mane.

24th.—Is considerably better, and more collected to-day; pulse 110; tongue moister; bowels freely opened, but much thirst; stump dressed with two or three adhesive straps, and water dressing.

Habeat Haust. Efferves. Subinde.

27th.—Continues still feverish and uneasy; pulse 106; tongue moister. No adhesions have taken place, but the flap hangs loose and sloughy; it is supported by two or three straps, and a poultice applied. The effervescing draughts and occasional doses of castor-oil continued.

29th.—Delirium again came on yesterday afternoon, and increased to such violence during the night, that it was necessary to put on the strait jacket to prevent him getting out of bed, and making for the window: pulse 110: tongue not dry; bowels not moved for two days. The head was ordered to be shaved, and cloths dipped in cold water constantly applied, and a blister put between the shoulders. In consultation it was agreed to give calomel in doses of two grain every four hours.

31st.—Delirium continues, but the pulse is rather stronger. Pergat. 8 P.M. Much the same; has had no sleep for 36 hours.

℞ Tinct. Opii. gtt. xxxv.; Aq. Menth. ℥ss. M. Fiat haust.

June 1st.—Slept occasionally during the night, but is still very delirious; pulse 100; tongue foul; passes his urine unconsciously.

℞ Sol. Mur. Morph. gtts. xl., statim. Vin. Albi. Hispan. ℥iv.

9 P. M. Has slept a good deal, and is certainly quieter; perspiration abated; pulse 96, and more regular.

℞ Sol. Mur. Morphiæ gtts. xlv.

3d.—Has improved gradually since last report, and is now quite sensible: pulse 96. He takes 45 drops of Sol. Mur. Morphiæ every night, and 30 every morning. Is ordered four ounces of white wine daily, nourishing diet, and effervescing draught at pleasure.

8th.—Improving steadily; has omitted the morning dose of the Mur. of the Morph. for two days. The wound is very large and open, but it is suppurating and granulating in a tolerably healthy manner. Pergat.

20th.—Considerable arterial hæmorrhage took place this morning, which, however, ceased on the application of pressure to the femoral artery, and a piece of lint dipped in creosote over the bleeding point.

22d.—Hæmorrhage recurred this morning, but was soon arrested by the same means as before.

23d.—Arterial hæmorrhage came on to an alarming extent during the night, and again this morning: it was found to proceed from three distant points of the stump. From the state of the parts it was in vain to think of tying the vessels; it was, therefore, resolved to tie the femoral artery, and this accordingly I immediately proceeded to do, with the assistance of my colleague, Dr. Keith. A small cutaneous branch, which was divided in making the first incision, was immediately secured. A single ligature was then passed round the artery, and the wound dressed as usual. Next day the temperature of the stump, which had sunk two or three degrees soon after the operation, had risen to the natural standard; and the granulations, which had become somewhat livid, resumed their florid colour. The secretion of pus, which had been copious, gradually diminished from this time, and cicatrization went on steadily, The ligature came away from the artery on the 14th day, and the opening through which it passed soon closed. On the 20th of July the stump was nearly healed, and on the 10th of August he was dismissed cured.

CASE OF SEVERE EPILEPSY ARISING FROM ENLARGEMENT OF NERVES.

M. D., æt. 21, was brought to the hospital on the evening of the 17th of February, 1840, with the left hand lacerated by machinery. The first three fingers, and half of the little finger, were carried away; and the inner side of the thumb, the palm, and back of the hand, lacerated. The crushed bones were removed at the nearest joints, and as much as possible saved, to form flaps, which were brought over the wound by adhesive straps, and water dressing applied. For some time she went on well, but on the night of the 6th of March she was seized with irregular convulsions, for which an anodyne antimonial draught was ordered. On the 7th she was found unable to speak, and the jaw firmly locked, but she seemed sensible, and pointed to the region of the diaphragm: pulse regular, but weak. Six grains of calomel, followed by strong cathartic enemata, were ordered; the head shaved, and bathed with vinegar and water, and a blister applied to the scrobiculus cordis. At night a draught of Tinct. of Valerian, and Mur. of Morphiæ, was ordered. Next day the trismus continued, with occasional slight relaxations; the eyes were fixed and turned up, and the chest raised at times from the bed by a degree of opisthotonos. These symptoms continued, with slight remissions, for three or four days, during which time leeches and a blister were applied to the head. Large doses of Tinct. Opii. administered; strong purgatives of calomel and jalap, followed by enemata, given; and the hand regularly poulticed. On the 10th the tetanic symptoms had almost entirely subsided, and the hand looked well, but she complained much of her head. It was again blistered, and pills of Aloes with Assafœtida given three times a day. From this time she improved regularly, and the hand continued to heal favourably till the 23d, when she was again attacked with trismus, and other tetanic symptoms. The head was again shaved, twelve leeches applied, followed by a blister, and a large dose of calomel with cathartic enemata. This treatment was successful: the hand healed gradually, without any further alarming symptoms, and on the 7th of April she was dismissed cured.

This patient returned to the hospital on 24th of June, on account of severe epileptic attacks. She had continued well for eight or ten weeks after she was dismissed, but about a fortnight ago suddenly fell down in a fit; and these attacks gradually became more and more frequent. They now recur five or six times a day, and last about five minutes, after which she lies a considerable time in a state of stupor. As she was of a full habit, she was immediately cupped from the nape of the neck to the extent of ten or twelve ounces.

℞ Calomel, gr. v.; Pulv. Jalapæ ℈i. M. Fiat pulvis, sint vi. tales; Capiat unum indies.

26th.—No change. The fits are so severe that it has been found necessary to put her in the strait-waistcoat, to prevent her from injuring her head and arms against the walls and the frame of the bed; and it requires two strong persons to keep her in bed. The head was shaved, and twelve leeches applied, and the purgatives continued. She also had occasionally a draught of Mur. of Morphiæ with Tinct of Valerian.

30th.—Fits continue unabated.—Adhibeatur vesicatorium amplum Capiti raso.

July 4th.—There has been a slight improvement for the last two days. She is now taking the Assafœtida pills thrice a day.

6th.—Epileptic fits have returned with severity.

℞ Nitrat. Argenti. gr. iv. Micæ panis. q. s. M. Fiant pilulæ xii. Capiat unam bis die.

16th.—The nitrate of silver has been continued regularly, the dose being increased to half a grain a day, without any marked improvement.

Repetatur Vesicat. Capiti. Continuentur pilulæ Nitrat. Argenti, et Pulv. Jalapæ c. Calomel pro re natâ.

22d.—As she still complained much of her head, it was determined to carry depletion still farther. Accordingly she was placed upright, and twenty-two ounces of blood taken from the arm, which produced slight faintness. Continuentur cætera.

30th.—Little improvement. It has been observed for the last few days, that, when the fits are slight, they are confined chiefly to the arm that was injured. On touching the stumps of the fingers smartly, the arm is convulsively withdrawn; and, when this is done while she lies in a state of stupor, violent convulsions of the arm are produced. She also says, when questioned, that she often feels a sensation proceeding from the injured hand up the arm to her head, before the commencement of the fits.

August 10th.—Since last report the fits have been very severe, often confined to the arm, but always one or two general fits of great violence daily. As it seemed highly probable that the disease was occasioned by an affection of the extremities of the nerves in the injured hand, it was proposed in consultation either to amputate the hand, or cut down upon and remove a part of the nervous trunks leading to it. The first was preferred, first, because the hand was of little use, the remaining thumb being contracted and immoveable; and secondly, because, as the ends of all the metacarpal nerves seemed affected, it would be necessary to cut down upon the ulnar as well as the median nerve, which would have rendered the operation as severe and more tedious than amputation.

12th.—The amputation was performed today near the middle of the forearm, by the double flap formed by transfixion. This mode was preferred, as being the most rapid, and allowing less time for the occurrence of the convulsions.

On tracing the nerves of the injured hand by dissection, the digital branches of the median nerve, and the branch of the ulnar, which supplies the ring finger, were found enlarged to four or five times their usual size, for one-third of an inch from their termination, and their extremities bulbous, and firmly imbedded in the hard cicatrix. They were also of a slight rose colour near their extremities, and firmer than usual. The flaps adhered by the first intention, and the cicatrization was almost complete on the 30th of August. The patient never had the slightest appearance of epilepsy after the operation, and was dismissed cured on the 8th of September.

HYPERTROPHY OF THE ABDOMINAL PARIETES.

Margaret Adam, æt. 33, of a lax and rather thin habit of body, was admitted on the 6th December, 1839, labouring under the following symptoms:—Belly is swollen, somewhat tense, tympanitic at its upper, and indistinctly fluctuating at its lower region. Complains of some weakness in back, but not of pain; pulse 86; tongue white; appetite very good; bowels slow; skin cool. Swelling commenced four months ago, shortly after childbirth, and has since continued; uterus normal. She was at this time treated with purgatives, diuretics, and mercury to salivation, and left the house with the swelling greatly diminished on the 1st July, 1840. She returned on the 17th February, with similar symptoms. Belly much swollen, soft, and tympanitic, but no distinct fluctuation can be felt: complains of occasional dyspnœa; appetite and general health good: bowels slow; swelling began to increase about fourteen days ago; urine rather scanty, and deposits some flocculi on being heated.

Remarks.—This case is worthy of some observation, in as far as the diagnosis of abdominal diseases is concerned, for there was an apparent obscurity about the symptoms on the first examination, although it does not appear to be a disease attended with any particular, at least immediate danger. The abdomen, when percussed, has a peculiar doughy or fatty feel; at the same time it is accompanied with a low or concealed tympanitic sound. It may be characterized as a tympanitic sound passing through a denser medium than the abdominal parietes of normal thickness; such as occurs in very fat individuals. This patient, however, is of rather a thin habit of body, so that a natural accumulation of fat in that situation cannot enter into the calculation; and she has no anasarca or fluctuation in the abdomen, while the integuments covering this latter cavity do not pit, in the slightest degree, by pressure; dropsical effusion must, therefore, also be excluded. On examining the abdomen with the stethoscope, the intestinal murmur was heard pretty distinctly, but deep-seated, or not in such close proximity to the ear as in a normal state of the abdomen, and, on pinching up a fold of the integuments from the abdominal muscles, it was found to be thickened to the extent of about two inches and a half; whereas, in most persons who are more than usually fat, the integument pinched up in this manner will not measure much more than half an inch, and frequently less. What, then, is the disease in this patient, since it is not ascites, anasarca, or a natural accumulation of fatty matter? It seems to depend upon two things, viz., first, the tympanitic swelling of the intestines, which does not exist to any great extent; and, second, the thickening of the integuments and cellular texture covering the abdominal muscles. Since her last admission she has been treated, in some respects, as formerly, with purgatives of the P. Jalap C. every second night, diuretic powders, and a blister to the abdomen, the latter being employed for the purpose of exciting absorption. She was dismissed on the 10th of April, with the abdomen very much reduced in size, the tympanitic swelling being altogether gone; but the integuments were still much thicker than natural.—*From a Clinical Lecture by Dr. Davidson, of Glasgow.*

ON THE
AUSCULTATORY PHENOMENA IN EXTERNALLY SITUATED ANEURISMS,

AND ON THE DIFFERENCE BETWEEN AN INDEPENDENT AND A COMMUNICATED PULSATION IN TUMORS.

By Dr. Schuk, of Vienna.

When the stethoscope is placed over an aneurismal sac, or over a diffused aneurism, one perceives a very loud uninterrupted bellows-sound increasing with each pulsation. It is the more marked the more powerful the action of the heart is, the nearer the aneurism is to the heart, the rougher the wall of the artery turned towards the blood is, and the easier the blood contained in the aneurismal cavity can be put into eddying and vibratory motions by the wave of blood passing through it. The last circumstance explains why, in enormously large aneurisms with but few layers of coagulum, as well as in those of which the sac contains scarcely anything but layers of coagulated lymph, the bellows-sound is proportionally weak. In the first of these cases the quantity of fluid is too great for all its parts to be put into strong vibration by the current of blood; and, in the second, the quantity of fluid put in motion is small, and the layers of lymph, laid one over the other, hinder, in some measure, the conduction of the sound.

When the blowing is remarkably loud, it is observable that the note of the murmur is not equally high throughout; but that at the beginning of the diastole of the artery it appears higher, and thence decreases remarkably till the next diastole.

This murmur extends for a considerable distance both towards the heart and even somewhat further towards the distal portion of the artery, and becomes weaker as it is examined at a greater distance from the aneurism.

The causes of the murmur are, first, the friction of the current of blood on the rough walls of the aneurism, or the fibrine, or on the edges of the orifice of communication between the artery and the aneurismal pouch; second, the vibration or eddying motion of the fluid blood contained in the aneurism, excited by the current of blood passing through it.

In a varicose aneurism the auscultatory signs are heard in the most striking manner. I had not long since two opportunities of observing this condition; in both it resulted from unfortunate venesection at the bend of the elbow. In these cases the murmur, by its intensity, becomes a whizzing sound, and the equality of the strength, as well as of the note of the sound at the different movements of the motion of the blood, is very remarkable. These phenomena are already distinct at a period of the disease when, from its short duration, but little dilatation of the wounded vein has taken place, and they are, therefore, of essential use in facilitating and supporting the diagnosis. The loudest sound is heard at that part at which the purring can be most distinctly felt with the finger; that is, where the arterial current excites the vibrations of the venous blood. With the distance from this part, the sound gradually decreases in loudness, and at last merges into a bellows-sound, which is audible only during the diastole of the artery, and which is recognized on whatever part of the limb the stethoscope is placed, as well at the shoulder-joint as at the dorsal and palmar surfaces of the hand.

The phenomena just mentioned are of themselves, and for their own sakes, interesting, and they increase the probability of the diagnosis of aneurisms of all kinds. But their practical value appears especially evident in reference to the fact, that by their means one may distinguish an independently pulsating tumor, *i. e.*, an aneurism, from one to which pulsation is only communicated. In all works on surgery we constantly meet with expressions of regret that it is in many cases so difficult to determine whether a tumor which has the symptoms of both a visible and a sensible pulsation is an aneurism, or whether the motion is only communicated to a morbid growth by the artery running under it. If the tumor can be pushed aside, and if, when its position is changed, the pulsation ceases because the artery now no longer runs under it, one may be quite sure there is no aneurism. But this cannot always be done, and, in such a case, doubt, as to the nature of the disease, must sometimes exist in the mind even of an experienced surgeon.

If by pressing it with the finger we lessen the calibre of an artery, for instance the external iliac, to a certain extent, and sufficiently for the finger to perceive the sensation of purring, we may hear *a blowing sound at the moment of the pulsation*, along the whole course of the femoral artery down to the knee, but which, though evident and easily recognized, is yet far weaker than in an aneurism. It bears the greatest resemblance to what is called the placental murmur in pregnant women, only it is for the most part of short continuance, and limited to the moment of the arterial diastole. The phenomena that are thus artificially produced not unfrequently occur naturally in consequence of the pressure of tumors or morbid products on the arteries. If the pressure is too considerable, or too slight, no blowing is produced; in the former circumstance, because the arterial walls are brought into contact, and the circulation is prevented at that part; in the latter, because the slight pressure is not sufficient to give rise to such an obstruction of the blood as to produce a murmur of the increased friction between the blood and the arterial wall. Large thyroid glands, comprising, in some measure, the carotid, afford the most frequent opportunities of testing the truth of these observations. The blowing becomes in the same proportion weaker, and at last entirely ceases as the gland gradually diminishes in size under the use of remedies. This short consideration of the matter, therefore, warrants the following conclusion:—a tumor which pulsates synchronously with the adjacent artery may be considered to be an aneurism when the murmur heard with the stethoscope is loud, uninterrupted, loudest and often highest in its note at the commencement of the diastole of the artery, and gradually from that point of time decreasing in intensity; but the pulsation is only one communicated from a subjacent artery when the murmur is either altogether absent, or, if present, is heard only at the moment of the pulsation.—*Med. Jahrb. des Orsterreichischen Staates*, *Bd.* xxi. *St.* 3.

DIVERSITY OF CLIMATES.

How comes it to pass, that in the same site, in one latitude, to such as are *periœci*, there should be such difference of soil, complexion, colour, metal, air, &c. The Spaniards are white, and so are Italians, whereas the inhabitants about *Caput bonæ Spei* are blackamoors, and yet both alike distant from the equator: nay, they that dwell in the same parallel line with these Negroes, as about the Straits of Magellan, are white-coloured, and yet some in Presbyter John's country, in Ethiopia, are dun; they in Zeilan (Ceylon) and Malabar, parallel with them, again black: Manamotapa in Africk, and St. Thomas's Isle are extremely hot, both under the line, coal-black their inhabitants, whereas

Peruni they are quite opposite in colour, very temperate, or rather cold, and yet both alike elevated, Moscow, in 53 [55] degrees of latitude, extremely cold, as those northern countries usually are, having one perpetual hard frost all winter long: and in 52 degrees of latitude, sometimes hard frost and snow all summer, as in Button's bay, &c. or by fits; and yet England, near the same latitude, and Ireland, very moist, warm, and more temperate in winter than Spain, Italy, or France. Is it the sea that causes this difference, and the air that comes from it? Why then is the Ister so cold near the Euxine, Pontus, Bithynia, and all Thrace? *frigidas regiones* Maginus calls them; and yet their latitude is but 42, which should be hot. Anevira, or Nova Albion in America, bordering on the sea, was so cold in July, that our Englishmen could hardly endure it. At Novemberga, in 45 degrees latitude, all the sea is frozen ice, and yet in a more southern latitude than ours.—*(Burton's Anatomy of Melancholy.* Digression of Air.*)*

DR. GRIFFITH'S OPINIONS ON PHTHISIS.

The use of chalybeates is strongly enforced in a small pamphlet of Dr. Moses Griffith, whose prescriptions have been very properly admitted into the London Pharmacopœia, notwithstanding the author's chemical error, in doubting the decomposition of the sulphate of iron by the subcarbonate of potass. He adds to these salts nitre, in young subjects and recent cases, having begun with bleeding; myrrh in a more advanced stage, and when there is more debility. In all cases he recommends a diet of asses' milk, or skimmed milk, puddings, rice, and potatoes, with as little animal food as possible, of the lightest kind, once a day: snails also, either raw, or boiled in milk, he thinks materially beneficial, and prefers them to asses' milk: they may be bruised and hung up in a cool place, and the viscid fluid that issues from them may be made into lozenges. The warm or tepid bath he has found very useful in inflammatory hectic, particularly for children; and in one case he considers it as having cured a consumption in an advanced state.—*Dr. Young on Consumptive Diseases.*

VACCINATION.

To the Editor of the Medical Gazette.

Sir,

A good deal of blame has been cast on those gentlemen who have accepted the proposal of the Poor Law Commissioners with regard to vaccination: much, however, may be said in justification of those who are officially connected with Unions, in whom it would be unwise to give offence to guardians by opposing their wishes: but what is to be said of those who, not being medical officers of an Union, not only accept these terms, but actually underbid their brethren?

The guardians of the Bridport Union issued notices of the division of the Union into several districts, stating that they were "ready to contract with vaccinators for any of the specified districts according to the appointment of the Poor Law Commissioners." These notices were circulated amongst the practitioners in the town and immediate neighbourhood. For every district but one offers were made to vaccinate for the sum recomended by the Commissioners. One person, however, in no way connected with the Union, except as a resident, tendered for a district for One Shilling for each successful case.

I am, sir,
Your obedient servant,
A Constant Reader.

Bridport, 25th Nov. 1840.

[The name of the party has been sent to us, although we for the present withhold it.]—Ed. Gaz.

ROYAL COLLEGE OF SURGEONS.

LIST OF GENTLEMEN ADMITTED MEMBERS.

Friday, December 11, 1840.

J. Smith.—S. B. Rowland.—J. A. Robertson.—S. Kennedy.—J. T. Mould.—W. Papineau.—R. N. B. Mathews.—H. W. Savayne.—J. Guazzaroni.—W. E. Boddington.—H. Piers.—P. B. Giles.—F. W. Tupper.—J. F. Watson.—T. Taylor.

Friday, December 18, 1840.

J. Parrett.—G. W. Pretty.—J. Buck —W. C. Pyne.—H. T. W. Harper.—O. Andrews.—W. Winship.—C. Godson.—E. L. Falloon.—J. Chapman.—M. York.—J. T. Travers.—G. C. Edwards.

METEOROLOGICAL JOURNAL.

Kept at Edmonton, *Latitude* 51° 37 32" *N.*
Longitude 0° 3 51" *W. of Greenwich.*

Dec.	Thermometer		Barometer.	
Wednesday 16	from 14	to 32	30·04	to 29·76
Thursday . 17	32	21	29·73	29·67
Friday . . 18	15	35	29·58	29·51
Saturday . . 19	21	36	29·52	29·54
Sunday . . 20	30	37	29·74	30·04
Monday . . 21	31	37	30·14	30·21
Tuesday . 22	36	34	30·23	30·18

Wind N.E.

On the 16th cloudy; snowing frequently during the day. The 17th, noon clear, otherwise cloudy; rain in the morning and snow in the afternoon. The 18th and three following days, overcast. Snow in the evening of the 18th and 20th. The 22d, morning cloudy, otherwise clear.

Rain fallen, ·065 of an inch.

Charles Henry Adams

Errata.—In our last number, p. 483, col. 1, line 16, for "meshed," read "marked;" line 20, for "turned," read "torn." Page 484, col. 2, line 18, for "credi," read "crede."

Wilson & Ogilvy, 57, Skinner Street, London.

THE

LONDON MEDICAL GAZETTE,

BEING A

WEEKLY JOURNAL

OF

Medicine and the Collateral Sciences.

FRIDAY, JANUARY 1, 1841.

LECTURES ON THE PRINCIPLES AND PRACTICE OF PHYSIC,

Delivered at King's College, London,

BY DR. WATSON.

LECTURE XV.

Hæmorrhage:—most commonly by exhalation. Habitual hæmorrhages. Vicarious hæmorrhages. Idiopathic hæmorrhages, active and passive. Symptomatic hæmorrhages. Usual situations of hæmorrhage. Symptoms and diagnosis. Principles of Treatment.

IN the course of that somewhat cursory account which I have been endeavouring to give you of the general facts and doctrines of pathology, as a preparation for the better understanding of special forms of disease, we reached, some lectures back, the subject of local plethora, or congestion. From that point our road branched off in three several directions. We have pursued the first and main branch to its termination; that which led to the discussion of inflammation. We must now go back to the same point again; and follow first the one and then the other of the two remaining branches, which conduct respectively to the consideration of *hæmorrhage* and of *dropsy*. These branches are shorter than that along which we were last travelling; but they are not uninviting: they will open to us, if I mistake not, some interesting views of the country of which we propose, in the end, to make a more particular survey.

You are to observe that I treat of *hæmorrhage*, only so far as it falls to the care of the *physician*. The subject is exceedingly full of interest in its relations to surgery: and it will receive at the hands of my Colleague all the attention which its great importance, as a surgical accident, demands.

But *we* also, as physicians, have much to do with hæmorrhage; with what, for distinction's sake, I may call *medical* hæmorrhage; which differs in kind, in cause, in its consequences, and in the treatment it requires, from that which surgery contemplates.

Hæmorrhage by exhalation.—In surgical or traumatic hæmorrhage the blood flows from some considerable vessel, which has been cut, or torn, or somehow ruptured. You would greatly mistake if you inferred from that circumstance, (as you naturally might) that it is *usually* so—the only difference being in the situation of the vessel—in medical hæmorrhage also.

Yet that is the popular notion. When blood rushes out from internal parts, through any of the natural apertures of the body, the person is said and supposed to have *broken a blood-vessel*. Yet this is rarely, though it is sometimes, the case. In nine instances out of ten, if there be any rupture at all, it is rupture of numerous capillaries only: but even of this there is often no evidence.

Whence then, and how, does the blood escape from its natural channels? Why, it exudes from the unbroken surfaces of organs, without any appreciable lesion of arteries, veins, or capillaries; just in the same manner as sweat oozes from the skin, mucus from the inner surface of the bowels, and serum or synovia from the membranes that respectively furnish those fluids; and probably by the very same outlets.

This certainly is a very remarkable circumstance, if it be true: and you will naturally ask what proof we have of its truth.

The proof is simple and conclusive. We examine the surface from which the blood must have proceeded, and we find it entire: we wash and even macerate it; we employ the microscope to assist our powers of vision; yet we fail, after this careful inspection, to discover the slightest breach of substance, or any appearance of erosion.

When, for example, hæmorrhage has occurred so profusely from the stomach or bowels that the death which ensued could be sufficiently accounted for by the mere loss of blood, the whole tract of the alimentary canal has been diligently scrutinized, and has exhibited no ruptured blood-vessel, no abrasion even of its surface, nor any perceptible alteration of texture. Sometimes its mucous membrane appears, here and there, of a red colour, and, as it were, charged with blood. Sometimes it is pale and transparent, while the vascular net-work visible immediately beneath it is gorged and turgid. Sometimes the whole is colourless, the same net-work of vessels having been completely emptied by the previous hæmorrhage: and sometimes, again, (and this is very illustrative of the mode by which the blood has issued) vast numbers of small dark-coloured masses, like grains of fine sand, can be made to start from the surface of the membrane by slight pressure. There can be no doubt that these are minute portions of blood, which had remained and coagulated in the vessels or apertures forming the ultimate channels of the hæmorrhage.

We have absolute proof, therefore, that hæmorrhage may transude through an uninjured surface: nay, in some rare cases, the process has been actually witnessed. There are well-authenticated instances on record of *cutaneous* hæmorrhage; where a dew of blood has appeared upon some portion of the skin, has been wiped away, and has reappeared; and that again and again, without any perceptible alteration of the affected surface, beyond some occasional variation in its colour. So again the menstrual discharge has been seen to issue *guttatim* from the healthy surface of a living and inverted uterus. But I confess, that although this analogical fact helps our conception of the manner in which blood may be exhaled from an unbroken membrane, I should not lay much stress upon it for any other purpose. It is not exactly a case in point. The process of menstruation cannot be looked upon as a morbid process. During a certain portion of the life of an unpregnant female, it is not only consistent with perfect health, but even essential to it, and the fluid poured out is not strictly blood.

That the blood proceeds from the same vessels or apertures which, in health, pour out the fluids natural to the part, is rendered the more probable by this fact:—that certain hæmorrhages are ushered in and succeeded by an increased efflux of the fluids which belong to the surface concerned. In hæmorrhages from the mucous membranes the following succession of events is, in some persons, habitual. First, there is an augmented flow of mucus alone; then of mucus tinged with blood; then of pure blood: and the hæmorrhage recedes by a similar, but inverse gradation, towards a mucous drain, which itself at length decreases or disappears.

When blood thus exudes, we say that the hæmorrhage takes place by *exhalation*. It is a convenient word, and will spare circumlocution. What the vessels or outlets to which we give the name of exhalants really are; whether they be branches from the capillaries not large enough in the natural state to admit the red particles, or whether they be mere pores in the sides of the capillaries: these are points concerning which we have no positive knowledge. We know, indeed, that such channels must exist, though we cannot demonstrate or see them; and we know that while every part of the body is in a state of health and integrity, they do not allow the blood, as such, to pass through them.

Now, although internal hæmorrhage may happen in other ways; as from the bursting of an aneurism, or from an opening made in a large vessel by progressive ulceration; yet in by far the greater number of cases it takes place by exhalation. Exhalation is the rule—other modes of hæmorrhage furnish the occasional exception.

I must exclude, however, from this general statement one very important hæmorrhage. In the brain, the former exception becomes the rule. In almost all cases cerebral hæmorrhage results from the rupture of a blood-vessel.

There are various kinds of hæmorrhage by exhalation. I will bring them before you, in succession, as clearly and concisely as I can.

Habitual hæmorrhages. — In the first place there are hæmorrhages which, although they do not belong to the state of health, if we take mankind in general, yet when they do occur, cannot properly be called diseases. There are some persons—I believe I may say there are many persons—who are subject, during the greater part of their lives, to discharges of blood; which happen again and again, commonly at regular intervals, without any perceptible detriment to the general health, independently of any obvious exciting cause, and (as it would seem) from some inherent property or necessity of the system.

Hæmorrhages thus occurring, I will call *habitual hæmorrhages*. They proceed more commonly from the rectum, or from the nares, than from any other part; although instances are recorded of their taking place from the bladder, and from the bronchi. Appertaining to the original constitution of the body, this disposition to periodic hæmorrhage has been sometimes observed to be hereditary.

You will at once be struck with the analogy which obtains between these habitual hæmorrhages occurring in either sex, and the monthly discharge which is peculiar to the female. The analogy is even closer than it may at first sight appear: but it is more distinctly marked in some individuals, liable to habitual hæmorrhage, than in others. It was one of the singular notions of the celebrated phrenologist M. Gall, founded upon this analogy, that there is such a thing as male menstruation. The points of resemblance between the two phœnomena will be manifest in the following summary of the characters belonging to habitual hæmorrhage.

Like the catamenia, these hæmorrhages do not ordinarily prevail throughout the whole course of life. In most cases they do not commence before the period of adolescence; and they cease altogether, or recur at distant intervals only, in declining age. Their first eruption is sometimes preceded by a state of general indisposition, more rarely by slight febrile disturbance, and even (according to some observers) by a sort of chlorosis similar to that which affects young girls in whom the menstrual evacuation is delayed or suspended. The hæmorrhage sometimes recurs at precisely regular intervals, and by *monthly* periods more commonly than any other: being announced, on each occasion, by the same preludes, proceeding from the same part, continuing for the same space of time, and furnishing always about the same quantity of blood. Its accidental interruption is almost uniformly the cause or the consequence of some derangement of the health: and when it becomes excessive, it becomes, like too profuse menstruation, a disease.

Vicarious hæmorrhages.—It forms a very curious part of the general history of hæmorrhages that they are not unfrequently *vicarious*, or supplemental, sometimes of each other, but more often of the monthly discharge from the uterus. Females are liable to perverted menstruation, (so to call it) through other channels than the natural one: and here again the analogy between the catamenia and habitual hæmorrhage comes into view. The hæmorrhages which belong to the constitution are apt to wander in their seat. As bleedings from the lungs, stomach, rectum, or skin, sometimes follow upon the suspension of the menses, so bleedings from the bladder, from the mouth, and from other parts, has been occasionally observed to succeed the suppression of habitual hæmorrhoïs.

These hæmorrhagic deviations take place commonly by the same organ on each occasion; more seldom by different organs in succession. It is almost always in this supplementary manner that the rarer forms of hæmorrhage occur, and those of the skin in particular.

This singular migration, this interchange of place between certain hæmorrhages seems calculated to throw some light upon the obscure doctrine of *revulsion;* a doctrine to which I have already more than once referred, and which, though it is very imperfectly understood, is of frequent avail in the practice of physic.

Vicarious hæmorrhage always denotes a disordered state of the general health: and must be considered, in itself, as a malady.

Idiopathic hæmorrhages.—Again, there are certain forms of hæmorrhage, not habitual, which may be denominated *idiopathic;* inasmuch as they are apt to arise without any perceptible connexion with antecedent local disease.

In other respects, however, they differ considerably, and require to be farther distinguished: and the terms *active* and *passive*, which are in common use, will sufficiently express the two forms of idiopathic hæmorrhage that I wish to bring under your notice.

Active hæmorrhage is preceded by active congestion, and therefore is akin to inflammation; and it often requires the treatment of inflammation.

Passive hæmorrhage often occurs without any apparent previous congestion of any kind. Hæmorrhage of this passive character has been ascribed to some change—different from that which we conceive to be produced by the distension of plethora—in the vessels or apertures through which the healthy exhalations are transmitted. The change is considered as being of the nature of morbid debility or relaxation. That such a state may sometimes exist is not impossible, nor even unlikely: but as we are altogether ignorant of the natural condition of these outlets, it is difficult to reason about the alterations to which they may be subject in disease. This hypothesis derives its chief support from the occasional efficacy of *astringent* substances (either applied locally, or taken into the system) in checking the effusion of blood; when other remedies have failed.

A more probable hypothesis perhaps is that which supposes some alteration in the consistence or composition of the blood itself; which thus becomes attenuated, and capable of passing through channels or orifices that healthy blood, under ordinary circumstances, cannot penetrate. In support of this supposition are adduced the facts that hæmorrhages are known to occur where the blood is more thin, pale, and serous than common: and still more remarkably where that fluid has undergone a demonstrable change in its chemical nature, or is even visibly altered in its sensible qualities; as, for example, in certain cases of purpura and sea-scurvy. And hæmorrhages of this kind are often cured by measures calculated to repair the blood; to restore it to its natural condition by improvements in diet; or by food of a peculiar kind, as the juice of lemons.

Whatever may be the true explanation of the differences in question, there can be no doubt that they exist, and are often strongly pronounced, in cases of hæmorrhage, which, inasmuch as they cannot be traced to any pre-existent local disease, we class together as *idiopathic*. And it will be worth while to run over the distinctive characters of active and passive hæmorrhage, as they are broadly and decidedly visible, in well-marked cases.

Active Hæmorrhages.—*Active* hæmorrhage (which is preceded, I repeat, by active congestion) occurs principally in persons who are young and robust, who live fully, and lead indolent lives, and are subject to the influence of those causes which tend to generate plethora. Occasionally the hæmorrhage can be traced to some exciting cause, such as exposure to heat, strong mental emotion, violent exercise, or bodily efforts. More frequently, perhaps, no exciting cause is apparent. It is sometimes ushered in by a set of symptoms expressive of what has been called the *molimen hæmorrhagicum*. The patient experiences a general feeling of indisposition, with wandering and obscure pains that gradually settle in the part from which the blood is about to be discharged. A series of local symptoms, such as a sensation of weight, or of tension, or of heat and tingling, sometimes a slight degree of turgescence and redness, and a visible fulness of the larger veins, indicate the afflux of blood towards the labouring organ, and the parts in its vicinity: while chilliness, paleness, and shrinking of distant parts, and especially of the feet and hands, denote an opposite state of the circulation in *them*. And to this state of things there often succeeds a general increase of heat, with a frequent, full, and bounding *pulse*,—a pulse which is so characteristic sometimes, as to have acquired a name: you may often hear or read of, a *hæmorrhagic* pulse. The blood, when at length it breaks forth, commonly escapes with rapidity; is of a florid colour; proceeds from a single organ; and readily coagulates, though it seldom separates distinctly into serum and crassamentum. While it is flowing, the signs of local congestion diminish and disappear; warmth returns to the extremities, and the pulse regains its natural strength and frequency. The patient becomes conscious of a sensible relief; and feels stronger and more lively than before. This kind of hæmorrhage is, in some sort, its own remedy; it ceases in virtue of the discharge of a certain quantity of blood, and it is followed by morbid consequences only when that quantity has been excessive; or when it inflicts some mechanical injury upon the parts along which the blood passes.

I said that active hæmorrhage is preceded by active congestion, and is consequently akin to inflammation. Perhaps it may be more true that in some of these cases we actually have the initial stage of inflammation, of which the hæmorrhage proves the natural cure: strangling it in its birth; applying, in the very moment when it is most effective, that remedy which, in the last lecture, I told you was the most potent of all the remedies of inflammation; namely, *loss of blood*.

Passive Hæmorrhages.—*Passive* hæmorrhage on the other hand is characterized by circumstances of an exactly contrary nature. It occurs in those who are naturally feeble, or who have been debilitated by disease, fatigue, insufficient nourishment, great evacuations, or the depressing passions. It is not, in general, announced by any precursory symptoms, nor attended by any re-action. The effused blood is of a dark colour, serous, and but little disposed to coagulate: and it often is poured forth from several parts of the body at the same time. If the quantity lost be at all considerable, the natural debility of the patient is rapidly augmented: his face becomes pale, and his body loses its heat. The hæmorrhage leaves him in a worse condition than that in which it found him. The flow of a certain quantity of blood is not, as in the cases of *active* hæmorrhage, suspensive of its farther effusion: frequently, indeed, passive hæmorrhage resists the means opposed to it the more, in proportion as it has continued longer, or been more profuse.

Symptomatic Hæmorrhages.—Hæmorrhages of the kind I have now been describing—that is to say, depending upon no palpable disease of any organ, and, therefore, idiopathic—are of no uncommon occurrence, whether we regard the active or the passive form in which they appear: but by far the greater number of hæmorrhages by exhalation are *symptomatic*; that is, they result from some previous disease, either in the organ from which the blood proceeds, or some other organ connected therewith by some community or dependence of function.

These secondary or symptomatic hæmorrhages are preceded by congestion, but for the most part the congestion is not of the active, but of the mechanical kind; and has more to do with the veins of the part than with the arteries.

Thus we have hæmorrhage from the bronchial membrane, in consequence of crude tubercular matter in the lungs, filling up a portion of the pulmonary tissue, and obstructing the circulation of the blood through it. This is an example of symptomatic hæmorrhage by exhalation, depending upon previous disease in the organ itself from which the blood proceeds.

In some of these cases the presence of pyrexia renders it probable that the hæmorrhage is the consequence and the relief of active congestion, provoked by the irritation of tubercles; rather than the result of a mechanical obstruction of the circulation.

Again, we have hæmorrhage into and from the lungs, as a consequence of such disease of the heart as mechanically impedes the return of the blood from the lungs to that organ: a narrowing of the mitral orifice, for instance. Here the blood is barred up, as it were, in the lungs, till at length the capillaries, incapable of farther distension, either give way; or become so dilated as to allow of the exit of the blood through their exhalant openings, or through inorganic pores in their sides. In precisely the same way blood is poured out by the mucous membrane of the stomach and bowels, in consequence of disease in the liver, obstructing the portal circulation. These are examples of symptomatic hæmorrhage by exhalation, depending upon previous disease, not of the organ itself from which the blood proceeds, but of another organ intimately connected with the former.

When I say that hæmorrhage into and from the lungs may result from such a disease of the heart as implies an impediment to the circulation, you must not suppose that the lungs are the only channel through which the mechanical congestion can be relieved. Disease of the central moving organ of the circulation leads often, at length, to *universal* venous congestion: and the hæmorrhage, which is apt to be the consequence of such congestion, may burst forth from any part where the veins are so overloaded. Hæmorrhage from various portions of the mucous membranes are in truth very common effects of cardiac disease.

The influence of mechanical congestion as a direct cause of hæmorrhage is sometimes very distinctly seen in the bodies of persons who have been hanged. You know that when suffocation has been produced by suddenly cutting off the access of air to the lungs; the right side of the heart, the great veins, and indeed the venous system generally, become loaded and distended with dark blood. Dr. Yelloly examined the stomachs of five men who had been executed by hanging: he found them all exceedingly vascular; and in two of the five cases, blood was actually extravasated, and adhering to the surface of the membrane: there had been, in short, unequivocal hæmorrhage.

There are several things, worthy of notice, in respect to hæmorrhage by exhalation, of whatever kind.

In the first place it occurs much more frequently and readily from some tissues of the body than from others; and most especially of all, from *mucous* surfaces. Thus we have hæmorrhage from the mucous membrane lining the nasal cavities; from the pulmonary mucous membrane; from the stomach and bowels; from the urinary organs; and from the uterus; constituting distinct forms of disease, which we are by and by to investigate more particularly. *Epistaxis*, *hæmoptysis*, *hæmatemesis*, *melæna*, *hæmorrhois*, *hæmaturia*, *menorrhagia*, are names descriptive of hæmorrhage as it is apt to occur from different parts of one or other of the three tracts of mucous membrane met with in the body: and you will find that these comprise very nearly all the complaints enumerated by nosological writers under the head of hæmorrhagy.

Now, this is a very remarkable fact: and very interesting questions arise out of it. Has it any relation to the manner in which these membranes, and the tissues subjacent to them, are supplied with a capillary circulation? Or may the fact be explained by the laxity of their attachment, which facilitates and favours the accumulation of blood in the vessels of the submucous tissue? Or has the density or consistence of their natural exhalations any thing to do with this disposition to hæmorrhage in the mucous membranes? May we suppose that the vessels or orifices appointed to exhale *mucus*, afford a more easy passage to the blood than those which give egress to thinner fluids; serum, for example, or the cutaneous perspiration? Whatever answers may be given to these questions, you will do well to recollect the fact which has suggested them.

Hæmorrhages by exhalation are not, however, exclusively confined to mucous surfaces. They are liable to occur, but much more rarely, from serous membranes. In the majority of cases, however, in which blood is found effused into any of the serous sacs, it has either been an event of inflammation, or the blood has been poured out from an accidental opening in some considerable vessel. Cutaneous hæmorrhage is also very rare; probably because the cuticle opposes a barrier to the exit of the blood: for the little red spots which characterize purpura are in fact hæmorrhages, although the blood has not penetrated the epidermis. There are cases, however, as I mentioned before, in which blood has transpired, in a sort of dew, from the external surface of the body.

Another important general fact in respect to hæmorrhages by exhalation is that they proceed more frequently from certain parts of the mucous membranes than others, according to differences of *age*. Thus in children they are most common from the membrane that lines the nasal cavities: in youth from the mucous membrane of the lungs and bronchi; in the middle years of life, and towards its decline, from the rectum, uterus, and urinary organs. I should add here, from the blood-vessels of the brain, in old age; except that this, as I have already intimated, is not (speaking generally) hæmorrhage by *exhalation*.

Of course when I say that, in the instances specified, the blood is commonly poured out by exhalation, you will understand that the hæmorrhage sometimes occurs from the laying open of a single vessel of some magnitude. Thus hæmorrhage from the fauces may be the result of ulceration there, which has penetrated the coats of a vein or artery: hæmoptysis is occasionally produced by the laceration of a blood-vessel during the softening and expulsion of tubercles. Hematemesis sometimes is the consequence of the lesion of a considerable blood-vessel in the progress of cancer of the stomach, or by the extension of small corroding ulcers; hæmorrhage from the bowels is no uncommon effect of ulceration, such as happens in fever, of the mucous follicles of the small intestine; calculous matter in the kidneys will often lead to the rupture of some of the blood-vessels there, and to the discharge of blood by the urethra. Aneurisms also may burst into almost any part of the body. But events of this kind are infrequent when compared with hæmorrhage from the same parts in the way of exhalation.

In the head, however, the ratio is reversed. Blood does sometimes, I believe, exude from the *membranes* of the *brain*, but much more commonly cerebral hæmorrhage is caused by the giving way of a diseased *artery* in the brain.

How, in all these cases, to distinguish whether the blood has oozed out by many orifices from a surface, or has escaped from a hole in the sides of a vein or artery, will form matter for future inquiry. Sometimes we *can* make the distinction; and sometimes, it must be confessed, we cannot.

You will readily understand that hæmorrhage must vary greatly, in respect to its importance, and to the danger which it implies, according to the part from which it proceeds, and the circumstances under which the blood is poured out. It sometimes happens that death ensues from the mere loss of blood; either at once, by one profuse bleeding, or more slowly, by repeated bleedings which we are unable to restrain: but this is comparatively rare, and when it does happen, the blood is generally found to have proceeded from one considerable vessel, which has been ruptured or eroded. The case approximates to traumatic hæmorrhage, except that we cannot cut down upon and tie the injured vessel. Much more commonly danger arises from the presence and pressure of the extravasated blood in and upon internal parts: upon the brain, for example, in cerebral hæmorrhage; in the lungs in pulmonary.

The symptoms also are liable to much variation in different cases. Even the diagnosis of hæmorrhage is not always equally easy, or certain. When the part into which the blood is directly poured communicates with the exterior of the body, the expulsion of some of that fluid will, generally, sooner or later, demonstrate the case to be one of hæmorrhage. I say *generally*, because cases have been known to occur, in which patients, previously in a state of great weakness, have died outright, by syncope, from the mere extravasation of the blood, and before any of it made its way out of the body. The stomach and bowels have been found full of blood, when none had passed either by vomiting or by stool. And when the blood does make its appearance outwardly, it is sometimes not easy to determine whether it has come from a certain organ, or from the parts that lie between the same organ and the natural outlet by which it ultimately escapes. For instance, it is sometimes a matter of uncertainty whether the blood, in hæmaturia, proceeds from the kidneys, or the bladder, or the urethra.

The blood itself, when it reaches the exterior, will generally be more fluid, and brighter, in proportion as it is effused in greater quantity, and nearer the surface: more in clots, and darker in colour, in proportion to the length of time that it has remained within the body after its escape from its proper vessels; and this length of time may depend upon the smallness of the quantity of blood effused, and the consequent tolerance of the organs through which it may have passed; or, upon the actual space traversed. Respecting the *colour*, however, of the effused blood, I shall have some curious explanations to offer you when I come to speak of hæmatemesis as a disease. It would be superfluous to enter upon them now.

If the site of the hæmorrhage does not communicate with the external air, we are without that certainty which results from the actual spectacle of the blood. But in such cases we are much assisted by local disturbances of function, springing from the pressure upon, or the laceration or distention of the suffering organ, or of the parts contiguous to it. And we may derive good information from observing the indirect symptoms which declare themselves through the system at large; many of which indirect symptoms are the same whether the blood reach the exterior or not. They principally vary according to the quantity of blood poured out, and to the *rapidity* of its effusion: and some difference will occur according to the age and strength of the patient.

Some of these indirect symptoms have not always been imputed to their true cause. Paleness of the face, feebleness of the pulse, coldness of the extremities, and a tendency to syncope—symptoms which are apt to be connected with hæmorrhage—have sometimes been ascribed to the alarm and sense of danger which the sight of the blood is calculated to produce in the mind of the patient. This may, to a certain extent, be sometimes true; but the explanation cannot apply to those cases in which the hæmorrhage is strictly confined to the interior of the body, yet in which the symptoms just alluded to are often strongly marked. They *then* depend—and probably in all cases they *chiefly* depend—upon the actual abstraction of the blood from the circulation.

The management of individual cases of hæmorrhage must be mainly regulated by the particular circumstances under which they occur. The few observations that I have at present to make respecting their treatment cannot be otherwise than very general.

But a preliminary question, of some importance, presents itself. Is it in all cases of hæmorrhage proper, or safe, to attempt to stop the bleeding?

Without going into detail, it may, I think, be laid down as a rule, that what I have called habitual hæmorrhages ought not to be interfered with, so long as they have no perceptible injurious influence upon the health, and so long as they proceed (as they mostly do) from parts, of which the *structure* is not likely to be spoiled, nor the *function* impaired, by the repeated passage of the blood. The most common seat of these habitual hæmorrhages I have stated to be the rectum; —to which the two conditions just mentioned are, fortunately, both of them applicable. Epistaxis supplies a less frequent example of the same kind. When they deviate from their usual channel, and are transferred (as it were) to some more important organ, it will generally be right, among other remedial measures, to endeavour to *recal* the original hæmorrhage. It is very seldom that the metastasis takes place *for the better*,—i. e. from a part where the bleeding is attended with danger, to one where it is comparatively harmless.

However, when these habitual hæmorrhages happen, as they often do, in plethoric persons; and when they are urged and kept up, as they frequently are, by intemperate and luxurious habits; we ought not to content ourselves with merely looking on. Hæmorrhoïs often performs the office of a safety-valve in such persons; and there are many who have what are called bleeding piles, and who would rather continue to have them, than submit to any change in their mode of life, or to the employment of other means of evacuation. Certainly these are cases in which nothing should be done to stop the bleeding; yet such patients ought to be told that the hæmorrhoidal discharge is but a precarious, and often an inadequate relief of the plethora: that while the plethora is suffered to exist there is danger of a cessation of the piles, and of the supervention of serious or fatal affections of other parts, and especially of the head. Apoplexy, or cerebral hæmorrhage, has frequently been known to follow hard upon the suspension of constitutional hemorrhoïs. The patients should be admonished also that the discharge of blood from the vessels of the rectum may become excessive; that if it be aggravated by exercise, or in any other way, it may lead to inflammation about the anus, and to great inconvenience; and that there are safe and tolerably sure methods of getting rid of the plethora (which is what chiefly constitutes the danger of such cases), if they will submit to the observance of them. It is in the intervals between the hæmorrhages that the danger of which they are in some sort the token, may best be met.

Again, it will seldom be proper to employ *direct* expedients for stanching the flow of blood, in the small class of active idiopathic hæmorrhages; unless the quantity lost is so great as to endanger the safety of the patient. Such hæmorrhages have commonly a tendency to cure themselves, by relieving the general plethora, or the local congestion, on which they depend. For these hæmorrhages, which bear so strong an analogy to inflammation, the *treatment* of inflammation may often be requisite, as an indirect mode in which their amount may be moderated, and their recurrence obviated.

With these exceptions, both direct and indirect measures are to be used, for arresting the effusion of blood as speedily as may be.

To this end the patient is to be surrounded as much as possible with cool fresh air, and kept in a state of absolute quiet. All motion of the body, and emotion of the mind, all kinds of stimulating food and drink, every thing, in short, which has a tendency to hurry the circulation, should be diligently avoided: and that position of the body should be chosen which is the least favourable to the afflux of blood towards the part affected. The horizontal posture will be proper in hæmorrhage from the bowels, the uterus, or the urinary organs. In epistaxis, and in cerebral hæmorrhage, the head should be raised.

In two words, the *antiphlogistic regimen* should be strictly enjoined in all cases of hæmorrhage sufficiently severe to require medical assistance.

Of the actual remedies used for checking the farther escape of the blood, one of the most important has already been alluded to — I mean venæsection. We are guilty of homœopathy in this matter: to prevent bleeding, we draw blood. After what was stated respecting the use of blood-letting in inflammation, I need not dwell upon the objects aimed at by this measure: they are briefly, to abate the vigour and force of the heart's contraction, to lessen general plethora when it exists, to remove local congestion, and to divert the current of the blood from the suffering organ. The method, and the amount, and the repetition of the blood-letting, must of course be regulated by the circumstances of each particular case. And the same objects may sometimes be effected by other modes of general depletion, especially by the use of purgative medicines.

Next to blood-letting, *astringents* constitute the great resource against actually existing hæmorrhage: and among these, *cold* is one of the chief. It may be placed in direct contact with the bleeding surface:—as when ice is *swallowed* to restrain hæmatemesis: or cold water injected into the rectum in excessive and exhausting hæmorhoïs; or into the vagina, in flooding from the uterus. Or it may be applied to the surface of the body, as near as possible to the seat of the hæmorrhage; as to the nose and forehead in epistaxis; to the chest in hæmoptysis; to the epigastrium in hæmorrhage from the stomach; to the lower part of the abdomen or to the perinæum in hæmorrhage from the intestines, uterus, or urinary organs. But the influence of cold in constringing the smaller vessels is not confined to the part with which it is in contact; it will stop hæmorrhage by the sympathetic shrinking which it produces in distant parts. Epistaxis, for example, has often been arrested by the sudden apposition of cold water to the neck, back, or genital organs. The nursery remedy consists in slipping a cold key down the back between the clothes and the skin.

Of even the mischievous power of cold in this way we have continual illustration in the suppression of the catamenia by cold and wet accidentally applied to the feet.

There is a long catalogue of medicinal substances which are esteemed to possess more or less of a specific virtue, when taken internally, in checking the flow of blood. Most of these are of an astringent nature, and some of them are eminently useful. The acetate of lead enjoys, in this country, a higher character, perhaps, than any other of these substances.

Many vegetable matters, and some artificial compounds, frequently employed in internal hæmorrhages, seem to owe their astringent and styptic properties to the gallic acid which enters into their composition. Such are the rhatany root, uva ursi, bistort, tormentil, the pomegranate, kino, catechu, the several preparations of gall-nuts, and the nostrum called *Ruspini's styptic*.

The power of arresting internal hæmorrhage has also been confidently ascribed, by different persons, to nitre given in large doses, to the mineral acids, to the muriated tincture of iron, to alum, to the oil of turpentine, to the secale cornutum or spurred rye, and to various other substances; a more particular account of the rules and indications for administering which, I may return to, when I have to speak of individual hæmorrhages.

LECTURES
ON
MORTIFICATION,

Delivered in the Medical Theatre at St. George's Hospital,

By Sir Benjamin C. Brodie, Bart.
F.R.S. &c.

Lecture II.—Dec. 2d, 1840.

Mortification from Strangulation or Ligature.

I now call your attention to some other varieties of mortification.

A ligature drawn round any part of the body, so as to intercept the communication with the great vessels and the heart, may cause that part to perish. But the effect of the ligature is not the same in all cases; and it does not always produce mortification in the same way. You apply a bandage round the arm before you bleed a patient, to make the veins of the forearm become distended, the object being merely to stop the circulation in the superficial veins. If you take it off at the end of a few minutes, the hand is at once just as it was before the ligature was applied. If you were to leave it on for twelve hours, the whole hand and forearm would become swollen, and would remain swollen for some time after the bandage was removed. The swelling in such a case arises from the congested state of the veins, and from the consequent effusion of some of the serum of the blood into the cellular membrane. If the ligature round the arm be still tighter, so as to obstruct the circulation to a greater extent, but without arresting it altogether, the same effect is produced, namely, serous effusion, which may continue for some time after the cause which produced it is taken away. The first effect, then, of a ligature which obstructs the circulation without arresting it completely, is to produce serous infiltration of the cellular membrane, and an œdematous swelling. The different kinds of dropsy depend on the same principle. Disease in the heart, impeding the circulation through it, gives rise to anasarca of the legs, and dropsy of the pericardium and pleura. Disease of the liver produces dropsy of the peritonæum.

But let us suppose that a ligature is applied in this manner round the arm, and allowed to remain, so that the impediment to the circulation continues. A low sort of inflammation is set up, the œdematous swelling and the tension are aggravated, and this may terminate in mortification.

This is one kind of mortification from ligature. But let us suppose that the ligature is drawn tighter still: that it completely intercepts not only the venous, but the arterial circulation. It is evident that the part below the ligature, being altogether deprived of that supply of scarlet blood which is necessary to the maintenance of vitality, must lose its vitality: and this, then, is another way in which a ligature produces mortification.

In the course of your practice you will meet with numerous cases illustrative of the different effects of ligatures according to the degree of constriction which they occasion. Thus, a woman has a femoral hernia. A large portion of intestine is protruded through the narrow crural ring in the act of coughing. The ligature is as tight as possible. The strangulation is complete. The arterial circulation as well as the venous is completely obstructed. If you perform the operation for strangulated hernia on such a patient, even in half an hour, you may find the intestine dead. But if (as generally happens) the degree of constriction is less, in consequence of the opening being larger, or the protruded intestine being smaller in quantity, then the venous circulation is obstructed more than the arterial; there is no mortification immediately: there is venous congestion, followed by inflammation, which may end in mortification in the course of two or three days, or, perhaps, not until after the lapse of a longer period. A man has a phimosis. He pulls back the præpuce, and the orifice becomes a stricture behind the *corona glandis*. There is venous congestion. The glans is swollen, assumes a purple colour, then becomes exceedingly inflamed, and that inflammation is followed by mortification. Again, a patient has internal piles. They protrude at the anus; the sphincter muscle acts spasmodically upon them. They cannot be pushed back through the sphincter: the return of venous blood is prevented; they swell, inflame, and, in the course of a few days, they mortify. By and by the slough drops off, and the disease is cured.

You will now understand the principle which ought to be kept in view when we use ligatures in surgical operations. You cure internal piles by a ligature. If you draw the ligature only moderately tight, you do not kill them at once: they swell: they inflame: they may die at last, but not till after a painful and tedious process. But if the ligature be drawn as tight as possible, it stops the flow of the arterial as well as of the venous blood, and the piles die directly. This is the way in which a ligature should be applied in almost all cases of surgical operation: it should be drawn as tight as possible. In dealing with piles, or nævi, or tumors of the tongue, the tighter you draw the ligature the sooner the sufferings of the patient are over. If you do not draw it tight, he suffers for a very long time, and very greatly; nay, perhaps severe constitutional symptoms may ensue.

I have said that when you apply a ligature in a surgical operation, your object should be to stop the flow of arterial blood at once; and you might suppose that if the ligature were kept on for half an hour, or an hour, that that would be sufficient; that the part being deprived of the flow of arterial blood for such a time it would certainly lose its vitality. But this is not exactly the case. You apply a ligature round an artery, draw it as tight as you can; it divides the middle and inner coats, but only compresses the outer coat. It makes a slough of a little piece of the latter; and when the ligature comes away at the end of ten days, or a fortnight, you find the slough in it. But if you cut off the ligature in half an hour, or an hour—an experiment which has frequently been made—there is no slough. The artery may be obliterated, or it may not, by the effusion of lymph; but the piece of the outer coat that was included in the ligature recovers itself; at least it does not come away as a slough. I once had occasion to observe the same thing illustrated on a larger scale. I had a patient with a malignant tumor of the tongue, which, according to the method suggested by Sir Everard Home, I determined to remove by ligature. I drew the double ligature as tight as I could; and when I saw the patient half an hour afterwards, the piece of the tongue included in the ligatures was quite livid, and apparently dead. I saw him again in three or four hours, and found him suffering a great deal of pain and inconvenience. It occurred to me that the piece of the tongue had been dead for some time, and that I should, perhaps, give relief by cutting off the ligature. With some little trouble I succeeded, but, to my great annoyance, the next day I found the whole piece, which appeared to be dead, alive again. The ligature, therefore, in surgical operations, must be drawn as tight as possible, and then left on until it is separated by a natural process.

Mortification from pressure.

Parts may be killed by pressure. The mode of death here is nearly the same as when parts are killed by ligature. The difference being simply this: the pressure is like a ligature applied to a broad surface, operating not on the arterial and venous trunks, but on all the small vessels and capillaries. Mortification from pressure is chiefly observable when the pressure is made on parts which lie over a bone; where there is no cushion of flesh between the skin and the bone. If the pressure be very tight, it may produce mortification immediately. I remember that when I was a student, a man came into the hospital with a fracture of the leg. The surgeon applied splints, and drew a bandage over them round the foot as tight as possible. The next day the man was in a great deal of pain and suffering. The bandage was removed, but it had already occasioned a broad slough of the skin over the instep. I have in other instances seen sloughs produced in the same manner, as it were instantaneously, in consequence of bandages being applied too tight.

But in the great number of cases where mortification is the result of pressure, it does not occur immediately, but after the lapse of some time; and it is not a direct, but a secondary consequence of the pressure. A man, for instance, is bed-ridden; he lies on a hard mattrass; he becomes very thin; the skin over the os sacrum becomes tender to the touch, it inflames, assuming a dark red colour; vesications form upon it; the inflammation goes on, and ends in mortification. Hence, though pressure may produce immediate mortification in some instances, yet in ordinary cases it does so by causing inflammation first, which inflammation, the pressure being continued, ends in the same manner.

This kind of mortification from pressure takes place under certain circumstances more readily than under others. A man is weakened by continued fever, and, from the state of debility in which he then is, pressure on the skin over the os sacrum and other projecting parts of bone will produce mortification, while it would not produce it if he were in vigour and health. After injuries of the spinal cord, mortification from pressure is very readily induced. A man has the spinal cord torn through in the middle of the back; and you find, almost before you suspect that there is any thing wrong, a great slough over the sacrum. Nay, the pressure of the mattrass against the ankles will, in such cases, produce mortification. I have known mortification begin in the ankle within twenty-four hours after an injury of the spine; and a remarkable circumstance it seems to be, that injuries of the spinal cord should thus lessen the vital powers, so as to make the patient liable to mortification, when we consider how many circumstances there are that would lead us to doubt whether the nerves have any influence over the capillary circulation. The circulation, viewed by a microscope, in a frog's foot, goes on just the same whether the nerves are divided or not. In an experiment which I was making on poisons, I divided all the nerves in a dog's axilla; I then divided all the skin which was attached to the anterior extremity, and then the muscles and cellular membrane, so that there was an absolute want of union between the extremity and the trunk, except by means of the axillary artery and vein, which I left untouched. The animal, at the expiration of twenty-four hours, was killed; but the limb maintained its vitality perfectly all the time. In spite, however, of this and of other circumstances which I might mention of the same kind, a concussion of the spinal marrow makes the patient liable—and sometimes almost immediately—to mortification of the parts below.

Patients are more or less liable to mortification from pressure, accordingly as they are more or less emaciated. A man with a good cushion of fat between the skin and the os sacrum, or the skin and the great trochanter, is not so liable to the formation of sloughs in those parts as a thin one; and that for obvious reasons.

When you suspect that pressure on any part is so great as to be likely to occasion mortification, you can do nothing but remove the pressure. When a bandage is placed in a case of fracture, you must remove it as soon as you suspect that the swelling of the parts has made it very tight, lest mortification should follow. When a patient has been so long confined to his bed, that you expect mortification will take place, you must endeavour to guard against it. It is more easy to prevent it than to stop it when it has once begun. How, then, is this to be accomplished? If a patient lies on his back, the skin sloughs over the os sacrum; if on one side, then it sloughs over the great trochanter. Endeavour, when he can manage it, to make a patient vary his posture. If he can be shifted, let him lie at one time on his back; at another, on his side: nay, let him turn round, and lie occasionally on his face. If you have what they call a prone couch, properly constructed for the purpose, he may, in many instances, use it to great advantage. In one of the worst cases of this kind, when mortification had begun, I used to turn the patient on his face many hours in the day, and with perfect success. But sometimes the patient cannot be shifted. There may be fracture of the thigh, and he must lie always on his back. You must then endeavour to take off the pressure by other means—by an air cushion with a hole in the centre, the tender part over the os sacrum being in the hole of the cushion. But in all cases where you use an expedient of this kind you should first apply a piece of common soap plaister, spread on calico, over the part, to support it. If you merely place the hole of the cushion under the os sacrum, the skin will bulge into the hole, and the patient will lie as bad as if there were no hole at all, or even worse. The same rule applies to all cases where you use contrivances to take off pressure, as in those of corns and bunnions. In cases where you can have recourse to it, the water-bed is very useful in preventing mortification from pressure. Dr. Arnott's hydrostatic or water-bed diffuses the pressure every where. When you lie on a mattress, the pressure is thrown on all the prominent parts of the body, and little elsewhere; but in using the water-bed the water rises to fill up the hollow places, and the pressure is not greater on the sacrum than on other parts. No doubt this bed is the best method which has yet been contrived for preventing mortification from pressure—the only objection to it is, that it is not applicable to all cases. In cases of compound fracture of the thigh or leg, for example, it would not give sufficient steadiness to the injured limb.

But another plan may be adopted to prevent mortification from pressure—that is, to prevent the inflammation which precedes it. The thicker the cuticle the more it will protect the parts beneath it. You may, if you attend to it in time, add to the thickness of the cuticle by stimulating the surface of the skin. Nurses know this very well, for when patients are bed-ridden they wash the parts subjected to pressure with brandy. What is better, is a lotion composed of two grains of the oxymuriate of mercury to an ounce of proof spirits. When you think that a patient is likely to be confined so long in bed that there may be mortification from pressure, wash the parts two or three times a day with this lotion. I have found it useful in other cases where a patient suffers from pressure. A man has a rupture which requires to be supported by a very powerful truss. It galls and frets the skin, and may at last cause inflammation and sloughing; but under the use of the lotion, a thicker cuticle is generated, and this mischief is avoided.

The sores which remain after the separation of a slough produced by pressure, are to be treated like common sores; this being kept in view, that the skin will slough again if the pressure be continued. You must, if possible, contrive to take the pressure off these sores; but, unfortunately, it is not always possible for you to do so, and in spite of all your care and trouble slough will form after slough, exposing the sacrum or trochanter, or other bony structures, whatever they may be.

Mortification from contusions and traumatic gangrene.

I now come to speak of mortification from a blow or other mechanical severe injury. It may be said that pressure is mechanical injury, but I now speak of a sudden injury operating for a short space of time, such as a contusion or a wound.

The effect of mechanical injury may be to produce mortification, which is confined to the parts actually injured. For instance, a man gets a kick on the shin, and the next day there is a slough, and the skin is dead, just where he was kicked. Why? Because the kick bruised the skin against the bone, ruptured the capillary vessels, and destroyed the organization in the part, so that life could not go on. But here the mortification is confined to the part actually injured. A remarkable circumstance happens in some of these cases. The cellular membrane has not so much vitality as the skin, and therefore perishes more easily. A blow will disorganize the cellular membrane which will not disorganize the skin. A man came into the hospital who had had a severe blow on the instep; there was a purple appearance, but no very extensive ecchymosis, and I thought nothing of it. The next day I found the part inflamed, the following day there was a good deal of swelling, and on the third day the skin was beginning to slough. I divided the skin with a lancet, and found a large slough of the cellular membrane. The blow had pressed the skin and the cellular membrane against the bones of the instep, and had killed the latter but not the former. The slough of the cellular membrane would have been followed by an extensive sloughing of the skin if, acting on the principle explained in my last lecture, I had not divided the latter freely. In cases in which you suspect that the cellular membrane may be destroyed while the skin is not, you must watch the patient, and if there be swelling and inflammation you should divide the skin, and save it from perishing as far as you can, though you cannot save it entirely.

But in other cases the mortification is not confined to the part actually injured, but may extend to the greater part of the limb. These are the cases to which the name of traumatic gangrene is applied. A man sustains a severe injury in the leg, and a great part of it mortifies. It would appear that the mode in which traumatic gangrene is produced varies in different cases. Mr. Guthrie, for example, describes a case in which mortification of the leg took place as high up as the knee, in consequence of a blow on the back of the leg. The limb was amputated, and when he came to dissect the parts it was found that the blow had lacerated the lining membrane of the popliteal artery, in consequence of which there had been effusion of lymph into the cavity of that vessel, stopping it up. That alone might not have produced mortification, but the anterior and posterior tibial arteries were torn through also, and the result of this double injury was that the limb, not getting a proper supply of blood, perished. In this case the pressure of extravasated blood might have contributed, in some degree, to produce the mortification. But local extravasation of blood, if it exist to a great extent, is, of itself, sufficient to produce this effect. When I was house-surgeon a man was brought into this hospital with some kind of tumor about the groin, but no pulsation was felt in it, and no one suspected that it was an aneurism. There was severe pain felt in the thigh, evidently arising from pressure on the anterior crural nerve, and the event proved that there was an aneurism, though it had not been indicated by the usual signs. It burst one day into the cellular membrane; the man screamed out as if he was being murdered, so horrible was the pain. The next day there was gangrene as high up as the groin, and the man died in about a fortnight. On dissection we discovered an aneurism of the internal iliac artery, which had burst under Poupart's ligament. The extravasation of blood had prevented the circulation from being carried on in the limb, and hence it mortified. There was a man in the hospital, long ago, who had popliteal aneurism. I had fixed the day for tying the femoral artery; but on the day previous to this, the aneurism burst into the calf of the leg, and the next day the limb was in a state of mortification; so that instead of tying the artery I amputated the leg. The vessels below were all quite pervious, and the circulation would have gone on very well but for the pressure produced upon them by the immense extravasation of blood. No doubt, in many cases of traumatic gangrene, this is one principal cause of the mortification.

But traumatic gangrene takes place in another way, and, to illustrate what I mean, I will mention the circumstances of a case which occurred in the hospital some few years since. A poor boy was jumping over a ditch, and came with considerable force upon his feet. There was a compound fracture of the leg above the ankle. The external wound was trifling, but it was evident that a great shock had been given to the foot and the leg. Four days afterwards the limb was in a state of mortification as high as the knee, and the mortification seemed to be extending to the thigh. I amputated the thigh as high up as I could, near to the great trochanter. We dissected the limb very carefully. The large arteries, and also the large veins, were quite pervious. There was, in fact, no injury whatever to the arterial trunks: but the cellular membrane, the muscles, and, in short, all the structures, seemed to be more or less disorganised. There were spots of ecchymosis in the large nerves; the periosteum was universally detached from the fibula, and very nearly so from the tibia. How does the periosteum adhere to the bones? By the small vessels. It is evident, then, that the shock of the accident must have occasioned a great injury to the small vessels connecting the periosteum to the tibia and fibula, and the probability is, that the same kind of injury inflicted on all the capillary vessels of the limb laid the foundation for the mortification. I do not see how the occurrence of mortification in cases like this can otherwise be explained.

It has been a sort of *dictum* of the schools of surgery, that you should not amputate while mortification is going on; and certainly, when there is mortification from ossified arteries (as I shall hereafter explain), or where there is mortification from inflammation, you ought to wait for the mortification being stopped, and for the formation of a distinct line of separation, before you proceed to an operation. But it must have been palpable to everybody who took the pains to consider the subject, that this rule would not apply to all cases of mortification. For example, a man has a strangulated hernia; when you open the sac you find the omentum strangulated, a part of it dead, and the mortification still extending. You would not hesitate in a case like this to cut off the dead and dying omentum. If piles were undergoing the process of mortification from being strangulated by the sphincter muscle, you would not hesitate to cut them off. You may conceive many other cases, in which the cause of mortification is local, and to which the general rule which I have just mentioned does not apply. Baron Larrey has the credit of having pointed out more distinctly than had been done before, that where there is mortification from local injury you may venture to amputate, though the mortification is still spreading. But I apprehend that the operation must be had recourse to at once, and that the case admits of no delay. If in consequence of local injury to a limb mortification has begun, but has not yet produced any severe shock on the system, there you may amputate. But where the mortification has been going on for some days, so that the system has begun to be influenced by it, the pulse getting weak, perhaps intermitting, and with great prostration of strength, in such a case you must not venture to amputate. Under such circumstances it is probable that the system is not in a state to bear the additional shock of the operation. However, I believe that cases enough may be adduced to prove that Baron Larrey's rule of not waiting to amputate till the mortification has stopped, is applicable in a great number of instances where the disease arises from local injury. It is good in theory, and there is now sufficient experience to enable us to say that it is good in practice also.

A FURTHER ENQUIRY INTO THE

ACTIONS OF THE OBLIQUE MUSCLES OF THE EYE.

By C. Radcliffe Hall, Manchester,

[*For the London Medical Gazette.*]

The existence in most mammalia of the suspensory muscle of the eye, must more or less complicate any results that may ensue from the division of other orbital muscles. The only experimental mode of obtaining decisive conclusions applicable to human physiology, appears to consist in stimulating the individual muscles themselves, or the nerves from which they derive their motor energy. In a previous paper,* I have stated the results obtained by the latter mode of experimenting on the dog and cat, and as the anatomical distribution of the third and fourth nerves, as far as the muscles are concerned, is the same in these animals as in man, it seems fair to conclude that similar effects would be produced by like experiments in the human being. In the dog and cat, whenever the eye-ball is retracted by the suspensorius, the rudimentary membrana nictitans (the haw) is protruded. The sixth nerve supplies the suspensorius and rectus externus exclusively; hence, when galvanism was applied to this nerve, the eye-ball was retracted, the haw projected, and the cornea directed outwards; in man, the last—eversion of the cornea—would have been the only effect. The principal conclusions arrived at by Mr. Duffin, from division of the tendons of the various orbital muscles in dogs, as stated in a late number of your Gazette, appear to be the following:—

1. When all the orbital muscles are in a sound and healthy condition, division of the adductor or abductor causes the antagonist muscle to contract in the fullest degree of which it is capable, producing strabismus, and "the movements of the eye-ball, in the diretion of the cut muscle will be wholly destroyed."

2. "The oblique muscles take very little part in the lateral movements of the eyes."

3. When the internal rectus is divided, the obliques have no power of inversion; and when the rectus externus is cut through, the pupil becomes less inverted than it is everted on the division of the adductor,—a difference in degree attributed to the combined action of the two obliques, which are supposed by Mr. Duffin to assist the rectus externus. The power of inversion possessed after the common operation for convergent strabismus is ascribed more to the "acquired influence of the inner fibres of the superior and inferior recti, than to the action of the oblique muscles."

4. When the inferior rectus was divided, three days elapsed before the cornea was displaced upwards by the action of the superior rectus.

5. Division of the superior rectus caused no alteration in the position of the cornea.

6. On division of all the straight muscles, "the pupil remained fixed in the visual axis of the orbit: *** it was quite impossible to decide what influence the oblique muscles exerted, or whether they produced any special movement at all. It was clear, however, that they neither drew the eye towards the outer nor the inner angle of the orbit."

7. On division of the superior oblique and internal rectus muscles, the eyeball protruded considerably, and the pupil—"dilated in a most extraordinary manner"—was drawn diagonally outwards and upwards. This diagonal direction of the pupil is attributed to the contraction of the inferior oblique when unopposed by the trochlear.

8. Division of the inferior oblique and internal rectus caused protrusion of the eye-ball, and the pupil was directed outwards but not upwards; and in this situation it remained immoveably fixed.

The experiments, from which I have abbreviated the above conclusions, appear to have been performed skilfully, and with every due precaution, and were doubtless observed with the utmost accuracy, but the results prove, I conceive, how difficult is the application of inferences so obtained to account for the action of the orbital muscles in man. Sir C. Bell divided the superior rectus in the rabbit; the eye remained stationary. In a short time, however, the pupil was depressed, and the animal had no power of raising it. Sir Charles accounts for this, by considering that during the experiment, the eye was spasmodically fixed by the general action of the muscles, and particularly by the powerful retractor.* Neither this result, nor those marked above, 4 and 5, would have occurred on the human subject. Instead of the marked protrusion of the globe and dilatation of the pupil which Mr. Duffin found to attend the division of either of the oblique muscles in the dog, Mr. Bransby Cooper states that the result of dividing the oblique in the rabbit was "the permanent retraction of the globe within the orbit, its depression on the floor of that cavity, the contraction of the pupil, without however any lateral direction."†

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* Medical Gazette for October 16, 1840.

A careful examination of the anatomy of the oblique muscles would seem to leave little doubt as to their principal actions, but from the inaccuracy of many plates of the orbital muscles in man, they might have been sketched from dissections of other animals. The exact situation of the insertions of the two obliques differs according to the obliquity with which the eyes are placed in the head. In the sheep, for instance, the tendon of the superior oblique is inserted between the cornea and the greatest transverse diameter of the globe; in birds, also, it is anterior to its point of attachment in man; whilst in fishes, in which the eyes look almost directly outwards, the arrangement is peculiar. In the cod-fish and haddock the obliqui pass from behind forwards and outwards, and are both inserted on the outer part of the eye-ball a few lines distant from the cornea. The superior oblique has no pulley, but the circuit which it makes over the globe probably gives it to some extent the power of rotating the eye outwards, whilst its insertion posterior to the transverse central line — as in man — is unnecessary, on account of the different direction in which the muscle acts. The inferior oblique, by drawing the outer and front part of the eye-ball downwards, backwards, and inwards, the other muscles being passive, would produce the direction of pupil by which the fish seems to endeavour to exclude too strong a light. I concentrated the rays of the sun on the eye of a gold fish, both in and out of water, without producing the least change of size in the pupil, and the fish betrayed no other evidence of the light being unusually strong, than by drawing the lower part of the globe inwards and rather backwards so as slightly to conceal the inner and lower portion of the pupil, and, at the same time, to project the upper part of the globe. This, I conceive, was due to the action of the obliquus inferior, which, in this case, would subserve the same purpose which it does in man by the opposite means of directing the pupil upwards and inwards. Such a motion in the fish, having no eye-lids, would defeat the intention, and as strong light invariably enters the water from above, the means though slight seem well adapted to fulfil the end in view. If the globe of the human eye be distended to its natural size by mercury, or wax, and the insertion of the oblique muscles accurately dissected, no one can question that they both pass from within outwards and backwards, and are connected to the sclerotica posterior to its greatest transverse diameter. Assuming other muscles to be passive, and the eye-ball to be capable of partial revolution on the optic nerve as its axis, the shortening of the tendon of the superior muscle draws the outer and back part of the globe forwards and inwards, and throws the cornea into just the reverse direction. If the inferior oblique possessed just the same direction as the last, its action should be that of directing the cornea upwards and outwards; but its origin is considerable, and extends within the orbitar ridge beneath the eye-ball, as far back as the roof of the infra-orbitar canal, so that most of its fibres pass much more directly backwards and upwards, than does the tendon of the obliquus superior backwards and downwards. Its insertion, also, is more expanded, and commencing more anteriorly, extends closer to the optic nerve than that of the superior oblique. Hence, the effect of shortening the fibres of the inferior oblique is that of depressing the outer and posterior part of the globe, and drawing it slightly forwards, thus producing a slight rotation of the eye-ball on the optic nerve, and directing the cornea upwards and inwards. Acting alternately, the two muscles produce the rotatory movements, but contracting together they tend to draw the globe slightly forwards and inwards.

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* On the Nervous System, 3d edition, p. 157.

† Guy's Hospital Reports for Oct. 1838, p. 476.

In the ape, the eyes are directed forwards, and their muscles resemble in number and arrangement those of the human eye. Having obtained a full-grown monkey, I made the following experiments in the presence of Mr. Turner (lecturer on Anatomy and Physiology), Mr. Hunt (lecturer on the Eye), Messrs. Furnival, Redfern, and other professional friends.

Dec. 4th. The left eye operated on.

Obs. 1. The inferior rectus was divided — the cornea became directed slightly more upwards than that of the opposite eye.

Obs. 2. The internal rectus was cut through—the eye was drawn outwards for an instant, but resumed its previous situation immediately.

Obs. 3. The superior rectus being divided, the cornea assumed a directly central axis.

Obs. 4. The eye could still be inverted, but not nearly to the full extent, and could be directed diagonally upwards and inwards, but not at all directly upwards. There was complete power of eversion, and the pupil could be directed diagonally downwards and outwards, but not directly downwards.

Obs. 5. The rectus externus was then divided, by which all power of direct eversion was destroyed, but the cornea could still be directed downwards and outwards, though not to the extent that existed before the commencement of the experiment. The cornea, when the attention of the animal was not excited in an opposite direction, was fixed upwards and inwards, though not to the extent that could be induced in the other eye.

Obs. 5. The upper eye-lid was then cut through close to the edge of the orbit, and the tendon of the superior oblique brought forward by a curved probe and divided. The cornea was now directed upwards and inwards, but when the other eye was moved from side to side, slight vacillation was perceptible; but the cornea never passed more outwards than the central line.

Obs. 7. The pupils of both eyes simultaneously underwent changes, as the eyes were more or less exposed to the light, but no effect was produced on the iris by the section of any of the recti muscles, or of the superior oblique. It was thought that the pupils were more contracted after than before the infliction of the injury attending the experiment.

Obs. 8. The eye slightly protruded from the orbit, and the swollen condition of the eye-lids added to the appearance of protrusion.

Obs. 9. The direction of the cornea before closing the eye (the inferior oblique being the only muscle undivided) was upwards and inwards.

To afford a more satisfactory view of the eye, no incision towards the temple through the outer commissure of the lids, was made at the commencement of the experiment. On being set free, the monkey immediately picked off the adhesive straps which had been applied to the eye-lids, and thus left the upper part of the cornea exposed through the wound made in the upper lid for the section of the obliquus superior.

Dec. 10th. I was favoured by the presence of Messrs. Holland, Furnival, and Dorrington, surgeons.

The left eye-ball appeared rather sunk, and its cornea opaque through the wound in the upper lid which had not healed.

Right eye. The external commissure was divided, so as to give a better view of the eye-ball.

Obs. 10. The tendon of the rectus externus was cut through:—the cornea immediately became turned inwards, producing convergent squint. It could still be turned downwards and outwards to a certain extent, but all power of direct inversion was lost.

Obs. 11. The tendon of the rectus internus being divided, the cornea immediately returned to the centre; but, by attracting the attention of the animal, the cornea could still be directed inwards, but not to the same extent as it could before the section of the tendon.

Obs. 12. The tendon of the rectus inferior was divided:—the cornea was immediately directed upwards in the central line, so as to be half hidden when the upper eye-lid was not held up. It was difficult to excite the attention of the monkey so as to cause downward and outward motion, but this was, nevertheless, several times distinctly effected. The animal was readily made to move the cornea upwards and inwards, and to a slight extent, directly inwards, but generally the upward direction much predominated.

Obs. 13. The obliquus inferior was then cut through. No alteration from the upward direction and central situation of the cornea was perceived. The eye was several times caused to look downwards and outwards, and when the upper lid was much elevated, the cornea was occasionally raised upwards, and then more slowly lowered again to the horizontal median line, below which it was never depressed. No inversion, or any modification of inward motion, could be excited.

Obs. 14. No especial alteration in the size of the pupil attended the division of any particular muscle; except that, on the division of the obliquus inferior, the pupil appeared for the instant largely dilated. This was probably owing to the greater pressure made by the probe on the eye-ball, which was twined half round to bring the inferior oblique into view. During the whole time the iris was in almost constant action, the pupil being alternately contracted and dilated: but its size before and after the experiment appeared the same.

The animal evinced no sign of suffering acute pain, except at the commencement during the cut through the outer commissure.

The altered direction of the cornea from the action of any muscle after the division of its antagonist, was never so marked in degree as in cases of similar obliquity, from severe strabismus. When the outer rectus, for example, was divided, no portion of the cornea was so much inverted as not to be distinctly visible, whereas in many cases of strabismus the internal commissure obscures a small portion of the cornea.

Eighteen hours from the performance of the last experiment, and seven days from that on the left eye, the monkey was destroyed by hydrocyanic acid. On making a careful dissection of both orbits, the following were the appearances noticed. Left eye:—the cornea had sloughed, its place being occupied by large pulpy shreds; but the eye-ball had not completely collapsed. The wound in the upper eye-lid was not at all united. The swollen condition of the lids had in a great measure subsided. All the muscles but one were adherent to the remains of the globe, but the obliquus inferior was the only one inserted by its natural tendinous expansion. The tendon of the obliquus superior was lying loosely amongst some gelatinous coagulum posterior to the trochlea. The anterior extremity of each of the other muscles presented a swollen linear eminence, in which the muscular fibres terminated abruptly, without any vestige of tendon. The adhesion to the sclerotica was less firm than it appeared, the slightest traction being sufficient to separate the end of the cut muscle from its new point of attachment; when separated, the sclerotica presented no rough torn appearance at this point, but a smooth, slightly elevated surface.

Right eye. No swelling of the eyelids; cornea quite clear; pupil dilated: slight ecchymosis around the incisions. All the muscles except the superior rectus and superior oblique were perfectly detached from the eye-ball; their anterior extremities being free, lying loosely on the sclerotica, a thin layer of coagulated blood intervening, but connected laterally to each other by rather firm cellular tissue. The insertions of the obliquus superior and rectus superior were in every respect natural.

From the above, I believe it may be justly inferred that the oblique muscles are subject to the will, and not purely involuntary. They are probably of the mixed class, since the revolving motions of the eye which accompany winking are certainly performed unconsciously. Sir C. Bell writes, "It would appear that the inferior oblique muscle has a power of elevating the cornea under the eye-lid, and causing the eye-ball to revolve many degrees further than the rectus superior does."* From obs. 5, I am inclined to doubt the power of the inferior oblique to raise the cornea to a greater extent than the superior rectus, or even to the same extent. I believe that the action of the upper and inner rectus combined will produce a direct diagonal movement of the cornea upwards and inwards in a greater degree than the inferior oblique can; and that the contraction of the external and inferior rectus conjoined will produce a direct diagonal movement of the cornea downwards and outwards to a greater extent than that of the superior oblique. I think it probable that the inferior oblique is the only muscle of the eye-ball in action during sleep, when the degree in which the cornea is turned upwards and inwards is less than the maximum of which the individual is capable. The difference between the action of the oblique and that of two recti combined, is, that by the former muscles, the globe is rotated on the optic nerve until the cornea attains its diagonal position, whilst the recti, though producing the same position, can only do so by acting in a straight line, since they cannot in any case cause the eyeball to revolve."*

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* On the Nervous System, 3d edition, p. 159.

In reference to strabismus,—in one case, after complete detachment of all the fibres of the rectus internus, the cornea remains still slightly inverted, but by a voluntary effort this inversion can be increased. In another case, after the operation, the cornea is in the exact visual axis, but can be voluntarily inverted to a certain extent. I refer the voluntary inversion in both cases to conjoint action of the oblique; the degree of inversion which remains in the first case, is probably owing—as Mr. Liston and Mr. Duffin suppose—to an acquired action of the innermost fibres of the superior and inferior recti.

To recapitulate in brief, may we not conclude, that the obliques are both muscles of the mixed class; that the uncombined action of the superior obliquus is to rotate the eye to a downward and outward direction, which is less in degree than can be attained by the external and inferior rectus acting together; that the superior oblique alone never abducts the eye; that the inferior oblique, acting by itself, rotates the eye-ball so as to direct the cornea upwards and inwards, but not to the same extent as that which results from the full contraction of the superior and internal rectus combined; that when both obliques act consentaneously, the recti being passive, the eye is slightly drawn forwards and inwards, and the cornea directed inwards?

ŒDEMA OF THE FACE AND TONGUE, ULCERATION, &c.

To the Editor of the Medical Gazette.

SIR,

THE insertion of the following case in your widely circulated medical periodical, will greatly oblige, sir,

Your obedient servant,
JAS. SYME, L. R. C. S. Edin.

Alloa, Dec. 28, 1840.

Miss H——, a girl eight years of age, moderately stout and generally healthy, having had scarlet fever in a form so mild that medical aid was deemed unnecessary, was allowed to go out soon after, as she seemed to be quite recovered: after being out her face was discovered to be slightly swollen, the quantity of urine passed was also observed to be very deficient. On account of these symptoms I was requested to visit the child, on the 2d inst. She had little or no fever, and the following powders were prescribed:—

> ℞ Submur. Hydrarg.; Pulv. Scillæ, aa. gr. i.; Digitalis, gr. ss. M. One to be taken at night, and one in the morning.

She had only taken four of the powders when the urine was observed to be quite natural in appearance and abundant in quantity, and the two remaining powders were not used; so that she had four doses of calomel, containing one grain each, given at intervals of twelve hours. In about two days after she complained of her mouth being sore, which soreness rapidly increased, and, about the third day after taking the medicine, her face and tongue were greatly swollen, and the inside of the right cheek and lips severely ulcerated, at the same time saliva mixed with blood flowed in considerable quantity from the mouth. By the use of astringent gargles, decoct. sarsæ. &c., &c., she recovered in the course of eight or ten days.

In a case of this kind the medical attendant is exceedingly liable to be severely censured; as it is generally presumed that these unusual symptoms have been occasioned by the injudicious or unskilful use of medicine. In this case it could not depend upon idiosyncrasy, for the child has had, on former occasions, larger doses of calomel, when no other than the ordinary effect was produced. But there are many instances on record, in which salivation has occurred, without any medicine having been previously taken. A case is mentioned by Dr. Huxham, in the Philosophical Transactions (which has been quoted, along with others, by Mason Good), of a man forty years of age, whose life was endangered by a spontaneous salivation. Might not the exposure of the child to cold so soon after scarlet fever affect the salivary glands? It is certain the face was swollen before the child took any medicine; it is equally certain that calomel is prescribed by medical men of all grades every day in *much larger* doses to younger children; it is also very often prescribed by midwives and nurses in larger doses, and often without any restriction as to confinement. But, admitting that the medicine has really been the cause of such an unpleasant occurrence, it can only be regarded as an extraordinary circumstance which it is impossible to guard against, and for which no man can be held responsible. Another medical practitioner was called to see the patient after the face and tongue were swollen, who mentioned to me that he had seen six times the quantity of calomel in each dose given to a child, and repeated several times the same day with complete success, in a case considered hopeless.

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* Vide Mr. Hunt's paper, in Trans. Prov. Med. Assoc. for 1836.

ON THE POSITION OF THE PLACENTA.

To the Editor of the Medical Gazette.

SIR,

I BEG to send you the following case for publication, if you deem it of sufficient interest to obtain a place in your columns. It has special reference to a very important point in the controversy that has recently occurred between Mr. H. Carmichael and Dr. Doherty, of Dublin, respecting the position of the placenta.—I am, sir,

Your obedient servant,
JOSEPH BELL,
Surgeon.
Banhead, Dec. 15th, 1840.

Dec. 9th, 1840. 9 o'clock, A.M.—Mrs. L——, æt. twenty-three years, stout active female, of fair complexion, second pregnancy, has been troubled all night with trifling pains, but they have been more intense since 6 A.M.; water escaped about fifteen minutes ago; head is resting in perineum; no puffiness, but slight wrinkling of integuments of scalp; pulse 86. At half an hour past nine o'clock, that is, half an hour after I saw her, a female child of ordinary size was expelled. After the infant was separated, I supported the uterus with both hands. At ten minutes past ten o'clock, there being no appearance of placenta coming away, a half drachm of powdered ergot was given in a little gruel; gentle friction was made over uterus with the hand, and a slight pull was given occasionally to cord. The discharge of blood was not much greater than usual, and the uterus felt firm, but large: its fundus reached the umbilicus. At fifteen minutes to eleven, no change had taken place, except the occurrence of a slight pain, which expelled a few dark-coloured clots from vagina. The hand was now gently introduced into vagina, which was partly filled with clots. Os uteri was far up; its edges felt thick and firm; it was contracted considerably; the circumference of its outlet, I think, would measure about four inches and a half: at its posterior border there was about an inch of the placenta hanging into vagina. The fingers were gently introduced into uterus, and carried up along its anterior wall, to which the placenta was found firmly and extensively adhering. It was separated with considerable difficulty, after which it was immediately expelled along with a few clots on its surface. The uterus contracted firmly, and descended to hypogastrium. No hæmorrhage followed; a bandage and compress was applied; the patient felt well; pulse 80.

The placenta was small, and presented on its uterine surface a number of small, round, hard, whitish coloured spots or granulations. In this case, although, from the partially contracted state of the uterus when the hand was introduced, we cannot state with precision the distance that the placenta was placed from the os uteri, yet we are certain that it had its position on the anterior wall of the uterine cavity. The patient had no hæmorrhage from uterus during pregnancy, and that which occurred after birth of child was not excessive; by no means so profuse as it generally is in cases of partial placental separation. All the blood lost would not amount to more than thirty ounces. Both mother and child have as yet done well.

I may mention that I attended this woman in her former confinement, on the 20th of January last. She had then a tedious labour. The child was still-born; and from the abraded state of the cuticle it seemed to have been dead in utero for some time. The placenta came away in a few minutes afterwards.

ON CHYLE AND LYMPH.

To the Editor of the Medical Gazette.

SIR,

IF the following analysis and observations be of sufficient interest, you will oblige me by inserting them in the MEDICAL GAZETTE.—I am, sir,

Your obedient servant,
G. O. REES, M.D., &c.

Guilford Street, Russell Square,
Dec. 18, 1840.

The chyle and lymph have at different times been objects of inquiry to many physiologists and chemists, and considerable discrepancy is to be observed in the results obtained from their researches. Even the cause of the colour of the chyle remains still a matter of doubt, and is a subject on which we find Müller differing with Tiedeman and Gmelin. The great interest which attaches to this subject prompted me gladly to accept an offer which I lately received from my talented friend Mr. Samuel Lane, to make a full analysis of the chyle and lymph taken from the same animal immediately after death, and thus to have an opportunity of instituting a comparison more complete than any which I believe has as yet been made, and which appears to be of considerable importance.

At 5 o'clock A.M. a young ass was fed with beans and oats, of which it partook largely, and at 12 o'clock was killed by a blow on the head. The chyle and lymph were immediately and most dexterously procured by Mr. Lane; the former from the lacteal vessels, passing from the lacteal glands to the thoracic duct; and the latter from the lymphatics of the lower extremity.

I immediately commenced a careful analysis of the fluids, using precisely the same method, in order that the comparison I wished to make might be as complete as possible.

Before noticing these analyses I will describe a few observations which I made on a portion of chyle, with a view of ascertaining those qualities which are not so well detected during the steps of an analytic process. The following tests reacted on this fluid as follows:—

1. Acetic acid rendered the fluid more pellucid.
2. Test papers indicated a neutral condition.
3. Nitric acid caused a strong coagulation.
4. The specific gravity of the fluid was 1012*.
5. Boiling caused a firm coagulation.
6. Strong acetic acid rendered the curd produced by boiling quite transparent; and on water being added partial solution occurred.

The analysis of the specimens of chyle and lymph obtained as above described gave the following results:—

		Chyle.	Lymph.
Water		90·237	96.536
Albuminous matter		3·516	1.200
Fibrinous matter		0·370	0·120
Animal extractive matter soluble in water & alcohol		0·332	0·240
Animal extractive matter soluble in water only		1·233	1·319
Fatty matter		3·601	a trace
Salts	Alkaline chloride, sulphate, and carbonate, with traces of alkaline phosphate, ox. of iron	0·711	0·585
		100·000	100·000

The albuminous matter of the chyle, as estimated in this analysis, was of a dead white colour, which was probably owing to admixture with a substance of a peculiar character to be hereafter described. The albumen from the lymph showed no peculiarity; both specimens yielded an earthy phosphate by incineration; that from the chyle was in admixture with a considerable proportion of oxide of iron.

The fibrinous matter from both the chyle and the lymph reacted chemically as albumen.

No very marked difference was detected in the aqueous or alcoholic extractives obtained from these fluids.

The fatty matters were elain and stearin, and yielded no perceptible quantity of ash on incineration.

The whole of the alkaline carbonate mentioned in these analyses was obtained from the alcoholic extractives, indicating a large proportion of lactate of soda. The existence of iron in the extractive soluble in water is interesting, and makes it a matter for consideration whether this variety in the locus of iron observed in these analyses may not in some way relate to the absence of the red colouring matter of the blood.

I have stated that the albuminous matter of the chyle contained a substance in admixture, which rendered it of a dead white colour. This in the foregoing analysis has been estimated with the albumen. It may be obtained separate as follows:—

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* This was a specimen from the thoracic duct; the other observations are from the lacteal chyle.

If chyle be agitated with ether, the mixture speedily separates into three distinct portions—the lower a clear serous fluid, the upper a solution of fatty matter, and the middle portion a layer of a pearly white glairy substance insoluble in ether, and apparently owing its separation from the chyle to the abstraction of the fats by the ether, as it does not separate from pure chyle by simply allowing the fluid to remain at rest; at least not until decomposition occurs, when it falls to the bottom, and may be collected by decantation of the supernatant serum.

Having collected some of this matter for examination, I found it to react as follows:—

It was insoluble in alcohol both hot and cold, insoluble in ether, miscible with water, and soluble in liquor potassæ. When it had been dried on platinum foil, the addition of water made it pulpy, and it was found still to be miscible with that fluid, from which, however, it separated in flakes on the addition of diacetate of lead. These properties, together with its physical characters, at once showed it to be allied to mucus, and from some comparative experiments which I have instituted, it appears to resemble the mucoid matter obtained from the saliva. I may state that this substance as obtained from the chyle gives out while drying precisely the same odour as saliva does when subjected to the same process. It is probable that the white milky colour of the chyle is in great measure owing to the abundance of this substance which it contains, and not to the fat alone, as stated by Tiedeman and Gmelin. Certainly the results of this chemical inquiry strongly corroborate the observations of Müller.

As there has been considerable difference in the descriptions given by different authors of salivary mucus and salivary matter, I think it best to state that I compare this substance obtained from the chyle by agitation with ether to an animal substance which may be obtained from the saliva by a similar operation. Thus, when the saliva or chyle is agitated with ether, the fluid is separated into three strata—the upper in the case of saliva being nearly pure ether, in the case of chyle containing fatty matter; the lower consisting in either case of the principal constituents of each fluid; the intermediate stratum in both cases consisting of an animal matter insoluble in ether, and floating upon the surface of the lower stratum of fluid, and which I consider as one and the same animal principle, and as a constituent both of the chyle and the saliva. If these analyses of chyle and lymph be compared, we shall have an opportunity of discovering what those parts of the blood are which require most frequently to be renewed, or, to express it differently, which are most largely consumed in the capillaries for the purposes of secretion or growth; the chyle being the freshly supplied nourishment to the organismus, and the lymph that part of the blood which requires admixture with other matters before it can again assist in nutrition.

We observe that the water of the chyle is exceeded in proportion by that of the lymph, and the deficiency of solid matter thus indicated in the latter is principally accounted for by a deficiency of albumen, fibrin, and fatty matter; the loss in the last instance being by far the greatest. The alcoholic extractive has been largely called upon in the nutrition of the body, while the aqueous extractive would seem to take little or no part in the process.

The salts are considerably diminished in the lymph. The vast quantity of fatty matter, the formation of which appears necessary to carry on the process of nutrition, cannot but excite surprise, and obliges us to conclude that in some way an alteration by a transposition of ultimate elements must occur in the far greater portion of it before it can be used as a nutritive matter; for fat is not the principle most largely deposited by the secretory vessels, and indeed exists but in small quantities in the blood, when compared with the fibrin and albumen of the fluid.

The change of a fatty or hydrocarbonous body into one resembling albumen, can only be effected by the addition of oxygen and nitrogen; and if such a transformation really occurs, which seems more than probable, it becomes a matter of great interest to inquire how far respiration is concerned in the operation. It is exceedingly improbable that chemical analysis will ever detect a difference between the blood of the right ventricle, which is only very gradually receiving the chyle, and that of the veins, before admixture with the contents of the thoracic duct—our means of analysis are not sufficiently delicate—notwithstanding that it seems impossible but what some difference must really exist. The question now arises, do we observe during respiration any action which may be serviceable in freeing of an hydrocarbonous ingredient, that blood which is sent to the lungs from the right ventricle? The contradictory statements of different writers on respiration, and the curious diversity of results, not only as regards the quantity of carbonic acid expired, but also as to the existence or non-existence of that acid in venous blood, render the solution of this question a matter of no ordinary difficulty. From what is at present known, however, it is almost certain that a considerably larger proportion of oxygen is absorbed by the blood than re-appears in the form of carbonic acid. The power of this absorbing quality of the blood is well proved by an experiment made by Sir Humphry Davy.[*] Now all that would be required for the transformation of the fatty ingredients of the blood is not afforded by this supply of oxygen, for nitrogen must be superadded in order to form those animal matters of which the great mass of the organismus is composed. If we examine the results obtained by different experimenters as to the absorption of nitrogen, we observe some declaring none to be absorbed or exhaled by the process of respiration; others stating that nitrogen is exhaled, and a third class of experimenters (among whom we find Sir H. Davy) concluding that nitrogen is absorbed to the amount of one-seventeenth of the volume of oxygen which disappears from the atmosphere. It is greatly to be regretted that no experiments concerning the part taken by nitrogen in respiration are recorded, in which the time of taking food is noted, inasmuch as the contrary results which I have above mentioned are evidence that some varying cause (which may perhaps be chylification) is in action.

If it could be shown that nitrogen was absorbed during the time when the chyle might be supposed to be entering the blood, it would be a strong proof that it was useful, together with the oxygen, in decomposing and combining with the hydrocarbonous matters from which it seems necessary that the blood should be purified.

Though many facts and co-relative conditions require to be observed before a theory of this kind can in any way deserve a general reception, still I cannot refrain from suggesting this view of the subject, inasmuch as I think there is good ground for believing that it may be fully confirmed, when further expements have been made bearing on this interesting branch of physiology.

ANALYSES AND NOTICES OF BOOKS.

"L'Auteur se tue à alonger ce que le lecteur se tue à abréger."—D'ALEMBERT.

Aphorisms on the Treatment and Management of the Insane, &c. By J. G. MILLINGEN, M.D., &c. London, 1840.

DR. MILLINGEN, who was lately medical superintendent of the Asylum at Hanwell, thought that an epitome of the prolix volumes written on insanity would be useful to young practitioners, and has accordingly produced the little work before us. The aphorisms, which are five hundred and three in number, are partly the result of our author's reading, and partly of his own experience. They are generally instructive and judicious, but occasionally border on the splenetic. This alloy arises, no doubt, from his discomfort at Hanwell. The resident physician at a public lunatic asylum is almost necessarily in a false position; for he is subject to the advice, remonstrance, and command of those, who, if he is worthy of his place, are more fit to be his pupils than his masters. Yet, on the other hand, a dictatorship of the resident physician would have its inconveniences. Would it be well to adopt the plan suggested by Dr. Conolly, and approved of by Dr. Millingen, of placing all madhouses under the immediate conduct of the State? We doubt it.

An Inquiry into the Efficacy of Digitalis in the Treatment of Idiopathic Epilepsy. By EDMOND SHARKEY, A.B., M.D., &c. London, 1841.

THE method of administering digitalis in epilepsy, recommended by Dr.

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[*] Gilbert's Annal. xii. 592.

Sharkey, is to give one large dose, by which the danger is avoided which may follow an accumulation of small ones. Yet when the single dose is very large, the effects are staggering, and sufficient to make us pause before we imitate the prescription. Thus in the case of a young lady, treated by our author's father, where the patient took a quarter of an infusion made with three ounces and a half of fresh foxglove leaves, and some polypodium of the oak, the report is as follows:—

"5th. Took the draught yesterday, and in ten minutes had a fit less severe and shorter than usual; vomited frequently and violently till 12 of this day, her pulse sinking from 120 to 54, intermittent and irregular; complains much of pain of head, and soreness of epigastrium on pressure, &c."

The next day the report is,

"6th. Has had no fit; vomiting continued violently till 10 o'clock this morning; pulse 40, irregular and intermittent; great prostration of strength. Took a cup of coffee yesterday, and continues decoct. avenæ. Cramps of legs returned last night. Pupils have been dilated from the beginning of treatment." (p. 21.)

The vomiting and the dilatation of the pupils continued two days longer; but the case terminated in a complete cure. This was an instance where, as Darwin once said, the patient was poisoned into existence; but a practitioner must be a bold fellow to repeat such an experiment. Yet repeated it was; for in the next case, Dr. Sharkey's father treated a gentleman in the same way, and with the same success. "The prostration of strength and diminution of pulse in this case was absolutely frightful."

Other cases are narrated, which were treated with digitalis in various doses, and with various events. Dr. Sharkey has, we believe, omitted to mention in what dose he would recommend it to be administered. He compares it with turpentine and nitrate of silver, the two other remedies which have acquired the greatest reputation in the treatment of epilepsy, and gives it the preference. He believes it more efficacious than either, and objects to the nitrate of silver the dreadful discoloration which it is liable to produce. We agree with our author when he rejects so deforming a medicine, but we prefer the oil of turpentine, which has its cures to boast, to so ticklish a remedy as digitalis in an emetic dose. We are inclined to apply to it, what the College says of Veratria, "*non temerè adhibenda est.*"

We must observe that our author recommends the foxglove only in those cases which are uncomplicated, as well as idiopathic, and attributes the failure of the treatment in some instances to this distinction having been neglected.

The cases are candidly narrated, and this little work does Dr. Sharkey credit.

A Manual of Pharmacy, for the Students of Veterinary Medicine; containing the Substances employed at the Royal Veterinary College, &c. By W. J. T. MORTON, Lecturer on Veterinary Materia Medica, &c. Second Edition.*

THIS is a useful work for the veterinary surgeon, and does credit to the talents and industry of Mr. Morton. It is by no means confined to the horse: thus in speaking of nitrate of potash, our author says, "To CATTLE the nitrate of potassa may be given in the same quantities as to the horse. The dose for the SHEEP should not exceed one drachm; for the DOG, from five to ten grains. As a local remedy it is equally applicable for all animals." (p. 240.)

Of tartar emetic he observes, "Calves are readily purged by it in quantities of from two to three drachms.

On the dog it acts as an emetic; the dose being from one to three grains. A very large and strong dog might require four grains. Applied externally it quickly induces nausea, followed by vomiting—the stomach of the dog being easily acted upon; and hence the many agents that are extolled as emetics for him. Some are highly objectionable, from the violence with which they operate, as Turbith mineral—*subsulphas hydrargyri flavus*; crude antimony—*antimonii sesquisulphuretum*, and common salt; although they are favourites with sportsmen. Vomition appears to be almost a natural act of the dog, or, at any rate, it is generally attended with salutary effects. The agent partaken of by him in order to produce it is the dog-grass—*cynosurus echinatus.*" (p. 101.)

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*There is no date on the title-page, but the preface to the second edition is dated September, 1839.

MEDICAL GAZETTE.

Friday, January 1, 1841.

"Licet omnibus, licet etiam mihi, dignitatem *Artis Medicæ* tueri; potestas modo veniendi in publicum sit, dicendi periculum non recuso."
CICERO.

MEDICAL REFORM.

IT is scarcely possible to take up a number of any medical journal, without observing the interest excited by the subject of professional reform. Now, we read of a meeting of some Medical Reform Association; now, a letter or petition from a simple individual; at another time, it is a pamphlet showing how easily the author could make the profession happy, if certain wicked monopolists would only let him. These multiplied efforts prove the deep uneasiness which pervades our serried ranks, and indicate, at any rate, that their condition is far from prosperous. For, though the hypochondriac often mistakes the nature both of his disease and of the remedies which it requires, he is more rarely a *malade imaginaire* than the superficial suppose. Many of our brethren persuade themselves that their discontent is the offspring of charters, or arbitrary regulations, when, in fact, it arises from the want of profitable employment. Certain of these malcontents envy not only men of other professions, but those of different branches in their own. The physician, during his long probationary period of gratuitous practice, envies the quick success of his neighbour, the apothecary; while the general practitioner speaks of the easily earned guinea of the doctor, as if it were a common occurrence. Perhaps when roused by some trifling case at six in the morning—

Sub galli cantum consultor ubi ostia pulsat—

he envies the man whose gratuitous patients come at more civilized hours; and hopes that a cheap M.D. manufactory will convert general practice into something new, retaining all its profits, and none of its disadvantages.

The topic of medical reform so long mooted among ourselves, will now be more and more discussed in unprofessional circles. Besides the never-to-be-forgotten Bill of Mr. Warburton, besides the occasional appearance of the subject in newspaper columns, it has found its way into the last number of the Quarterly Review*, in a very clear-headed and sensible article. On this we shall offer some comments regarding a few topics on which we do not quite agree with the writer, and we shall then subjoin extracts on some important points.

According to the reviewer, the problem to be solved by the Committee of the House of Commons was, "The best mode of conducting medical education, so as to ensure a supply of well-informed and honourable practitioners, who, while they fulfil their duties to society in the best possible manner, maintain for themselves a respectable station in it." The Committee never made a report, and, consequently, never even attempted to solve the problem. The reviewer is not surprised at this; partly because a large portion of the evidence did not bear on this question at all; and partly, because the evidence consists of discordant materials, the analysis and arrangement of which would be an almost endless undertaking.

To us it seems that the analysis of 800 folio pages may be accomplished within a finite time; and if the Committee had passed over the large portion (three or four hundred pages, says the reviewer), devoted to the disputes between the Fellows and Licentiates of the College of Physicians, any literary man would have analyzed the rest for them in a month. But to reconcile discordant opinions, so as to form a rational and satisfactory report, would not have been quite so easy.

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* No. CXXXIII., December 1840.

One of the best things in the article of the Quarterly, is the answer to the one-faculty eccentrics. The divisions of the Profession, far from having been fixed by any headstrong despot, or mistaken lawgiver, have been the creations of social progress—the result of constant struggles for good advice and physic on the part of the community.

Here and there, we suppose, a one-faculty man may be found, who, having taken leave of his senses, and without any friends to care for him, really wishes to abolish the grades of physician and surgeon; that is, who intends to put a stop to improvements in physic and surgery; but, on the whole, we think better of these angry talkers, and suppose that they merely intend that physicians should know much of surgery, and surgeons much of physic—which few will be found to gainsay. As to the quantum of professional qualifications, no precise rule can be laid down; the standard has been constantly raised for many years, and may, no doubt, be still raised with advantage. "Roderick Random," says the Quarterly Reviewer, "became a surgeon's mate in the navy, with no other stock of knowledge than that which he had obtained from the surgeon-apothecary to whom he had been apprenticed; and we conclude that many private practitioners must have been in the same situation at the time when Smollett wrote; as schools of anatomy and medicine were then only just established in Edinburgh and London, and these, in London especially, were of a very imperfect kind. At present, however, the case is widely different."

Perhaps the reviewer goes too far when he says, "Let honour be given where honour is due. The first improvements were made by the Society of Apothecaries; and it was not until they had set the example that the Colleges of Physicians and Surgeons awoke from their long slumber, and discovered that the time was come for requiring a more extended medical education in every department of the profession." We are by no means inclined to depreciate the honour due to the Worshipful Society for their successful endeavours to raise the standard of medical education; but it must be recollected that, in 1815, they began with zero, and that several advances were requisite before the Colleges could be alarmed at their emulous progress, or think it necessary to awake.

The Reviewer thinks that no alteration is advisable in the length of the medical education now required by the College of Surgeons and the Society of Apothecaries; but he is of opinion that much alteration is wanted otherwise. He justly objects to the long period of apprenticeship spent in pharmacy, and he does not see why every candidate for the Apothecaries' license should necessarily have been apprenticed to an apothecary. Suppose a man has graduated at Oxford or Cambridge, and afterwards, from a want of adequate fortune, cannot live as a physician, why should he be prevented from practising as an apothecary? Can any reasonable person say that it would be for such a man's advantage, or for the advantage of the public, that he should be bound apprentice for five years, at the age of three or four-and-twenty, to learn the mystery of making effervescing draughts or pill aocia?

The Reviewer also disapproves of the early age at which the Society allows candidates to go up for examination; and thinks that the best encouragement to pupils to obtain a good general education would be to remove every inducement to their beginning their professional studies before eighteen or nineteen. General or preliminary education, however, is not altogether unnoticed in the Society's Regulations; for they recommend the study of French, German, the Classics, and the Elements of Mathematics and Natural Philosophy, before the commencement of the apprenticeship. They also express their regret that the greater part of the five years of pupilage, and sometimes the whole of them, should be devoted to pharmacy; and wish the pupil to attend lectures during his apprenticeship. If apprenticeships are to be continued, we would certainly have this interpretation rendered compulsory; for it is too bad that five precious years should be spent in mixing and grinding. But this we have discussed sufficiently on former occasions.

OPINIONS OF THE QUARTERLY REVIEW,

On various Points of Medical Reform.

SUPPRESSION OF QUACKERY.

AND here another question arises. Should those who have passed their examination, and received their license, have a monopoly of practice? Should there be penal laws to prevent their being interfered with by the competition of the ignorant, the uneducated, and unlicensed? or is it sufficient that the public are supplied with a list of those who are supposed to be qualified practitioners, it being then left to individuals to procure medical assistance where they please? To us it seems not in the least doubtful that the latter is the proper course to be pursued. It is right that no individual should be allowed to be inoculated for the small-pox, because he may communicate the disease to others; but in what concerns himself alone, we see no justice in the interference of the state. It may be foolish to be rubbed with St. John Long's balsam, or to trust to the prayers of Prince Hohenlohe, but mankind do many things more foolish than these, and nothing can prevent them. There can be no greater mistake than to suppose that, if there be no penal laws to prevent the existence of unlicensed practitioners, there will not be sufficient inducement to those who enter the medical profession to go through a long course of study, and then to subject themselves to an examination. The empire of opinion here, as in most other instances, will do more than legislative enactments: and this is no speculative doctrine, but the result of actual experience.

The College of Physicians possess, under their charter, confirmed by acts of parliament, a monopoly of medical practice in the metropolis, and within the distance of seven miles from it; and they in many instances instituted legal proceedings against the unlicensed physicians by whom those privileges had been invaded; but, finding that no good arose from these prosecutions, either to themselves or others, and that they were in fact altogether ineffectual, they have for many years abandoned them. The London Society of Apothecaries possess a similar monopoly, under the act of parliament of 1815, but on a still larger scale, as it extends to the whole of England. They also have frequently resorted to courts of justice in defence of their privileges, but with so little success that it is notorious that many apothecaries are practising without their license, either in open defiance of the law, or (which is no difficult matter) contriving to evade it. On the other hand, the London College of Surgeons have no monopoly, no privileges, no power to prosecute. Any one may establish himself as a surgeon, even next door to the College, and no one can molest him. But the College is of royal foundation, and the diploma which it grants has affixed to it the signatures of many of the leading surgeons of London; and so necessary has it become to any one who makes the least pretension to practise surgery, that there are few, either in England or in the colonies (with the exception of those who have a similar diploma from the colleges of Dublin or Edinburgh), who venture to call themselves surgeons without it.

We are aware that the foregoing observations will not be very acceptable to many of the medical profession. It is natural that the managing bodies of the several corporations should be anxious to maintain and extend their powers and privileges; and it is also natural that licensed practitioners, who have expended considerable sums of money, and no small portion of their lives, in their education, should be jealous of the competition of others. Accordingly we find, among the resolutions and petitions of the lately formed medical associations, no subject connected with schemes of medical reform put so prominently forward as the suppression of quackery. Let them, however, be assured that this is what no legislation can accomplish. It is no more possible to put down quackery in medicine than it is to put down quackery in politics or religion. The medical profession, while human nature continues to be such as it is now, and always has been, can never meet the demands which are made upon it. That men are born to die; that the power of giving relief is limited; that many diseases must prove fatal in defiance of all remedies; that other diseases, though not of a fatal tendency, may be incurable—no one will doubt the truth of these as general propositions: but the individual who labours under the inflictions of disease will always indulge himself in the hope that he is at any rate safe on the present occasion, and that the time is not yet come when he can derive no benefit from art. "It is very extraordinary," said a gentleman who had known little of the infirmities of age until he approached his eighty-eighth birth-day, "that no one can discover a cure for my complaints." Where the resources of skill and science fail, the instinct of self-preservation will lead many sufferers to look for other aid; and the honest and well-educated practitioner will always have to contend not only with the St. John Longs of the day, but with those among his own brethren who do not partake of his anxiety to avoid making promises which cannot be fulfilled. There are in fact no more offensive impostors than those who march under the banners of the true faith, and we suppose that even the most sanguine of the petitioners against quackery will not expect that such as these can be extinguished by an act of parliament. Let us not, however, be misunderstood, as recommending that no distinction should be made between those who are properly educated and licensed, and others. Each individual in society has, with respect to his own complaints, a right to consult whom he pleases; but it is quite different where he is to provide medical attendance for his fellow-creatures. The governors of a parish union, or a bench of county magistrates, should be bound to make their selection from those who are properly authorized to practise. They have no right to confide the care of the parochial poor, or the inmates of gaols and lunatic asylums, to any other persons. The same rule applies to merchant-ships, to schools, to the army and navy, and every other departmnt of the public service.

AGE AT WHICH LICENSES ARE GRANTED.

But although no alteration in the system of education may be wanted in this respect, it appears to us that much alteration is wanted otherwise. By the Act of 1815, it is made necessary that every candidate for a license to practise as an apothecary should have been apprenticed to an apothecary, who also had been licensed, during a period of at least five years; and the regulations of the Society of Apothecaries have from the beginning admitted the candidates for examination at the age of twenty one years. The College of Surgeons formerly did not allow candidates to appear before them until they had completed their twenty-second year, but of late (for what reason it is difficult to understand) they have taken off one year, and they now admit them at the same age as the Apothecaries.

Now we hold that the minds of very few young men can be sufficiently matured at the age of twenty-one years to fit them for such serious and responsible duties as those of a medical practitioner: and we further see another great evil as the result of this regulation, that it induces parents, in their anxiety to get their children off their hands as soon as possible, to send them to begin their professional studies while they are yet boys, and often without the advantage of even a moderate degree of education previously. We have conversed with many persons who have been engaged in the education of young men, not only for the medical profession, but for others also, and have always been informed that those whose minds have been prepared by a good preliminary education have on the whole been found to be much more diligent, and to have gained knowledge much more easily, than others. Our own experience, which has been sufficiently extensive, would lead us to the same conclusion; and we suppose that no one will venture to deny that there are moral as well as intellectual advantages belonging to a well-trained mind which are nowhere more likely to be conspicuous than in the various departments of the medical profession.

As matters now stand we find the subject of general or preliminary education altogether unnoticed in the regulations both of the College of Surgeons and of the Society of Apothecaries, except indeed that the latter require that the candidates should construe some scraps of Latin. If education be a thing of so much importance, ought such an omission to exist? and ought not proofs of a good general education to form a part of the documents which the candidates are expected to produce as entitling them to examination?

With all our prepossessions on the subject we doubt the policy of any regulation of this kind; and we would willingly avoid the fault of recommending that over-legislation which so frequently defeats itself. What is to be considered as a test of a good preliminary education? and in what does it consist? On these points there may be great differences of opinion; for while the mental faculties may be improved by the cultivation of various branches of knowledge, each individual is apt to regard that as most important which has most contributed to the improvement of his own. To require degrees at colleges and universities for the whole of those who enter the medical profession would be manifestly absurd; and, after all, the common degree of B.A. at Oxford and Cambridge is not incompatible with very little study and a very low degree of knowledge. Are the candidates to be especially examined as to their general as well as professional attainments? There being not fewer probably than five or six hundred candidates in the year, who would undertake the task? and, if such examinations were instituted, would they not soon degenerate into a mere empty form? Are the licensing bodies to be satisfied with certificates from schoolmasters and tutors? Those must have very little knowledge of the world, or of the nature of testimonials generally, who think that these would be of the smallest value. Let us look at the question as we will, we perceive insurmountable difficulties in the way of any other system than that of offering a negative encouragement to young men to obtain a good general education, by the removal of every inducement to begin their professional studies before they are eighteen or nineteen years of age. But further, we believe that this would be found to be generally sufficient. A father will not incur the expense of entering his son at a medical school sooner than is really necessary; and, for his own sake, if not for his son's, he will be disposed to keep him employed in some kind of study, rather than that he should dissipate his time in idleness. Besides, satisfied as we are of the vast advantages which the many are likely to derive from a good preliminary education, we are aware that intellects of a higher order may overleap the barrier which the want of it places in their way, and we should be sorry to witness the adoption of any measures the effect of which would be to prevent these master-spirits from entering the medical profession. The Inns of Courts have acted wisely in this respect. The tendency of their regulations is to encourage those who propose to be called to the bar to be liberally educated. They do not insist on it, and, if they had done so, the legal profession would have been deprived of some of its brightest ornaments.

But it may be urged that, if young men are not able to obtain a license to practise until they are twenty-three years of age, so many to whom it is important to obtain a livelihood in early life will be deterred from enterring the profession, that there will be an inadequate supply of licensed practitioners, and that the result will be to call into existence a number of other practitioners, who are unlicensed and unqualified. It is true that such was the effect of the too stringent regulations of the College of Physicians in former times, and such would be the effect of too stringent regulations at any period. But there must be much greater changes than those which we venture to suggest to make us liable to any such danger at the present moment. The supply of medical practitioners is in fact not only very much beyond the demand, but very much beyond what is necessary to ensure a just and useful degree of competition. For the truth of this assertion we venture to appeal to the experience of all those who will be at the trouble of making their observations on the subject; and to this cause may mainly be attributed the present restless and uneasy state of the profession. In this, as in all other pursuits, a certain degree of competition is required for the security of the public; but in the medical profession it is easy to conceive that the competition may be not only beyond what is really wanted, but so great as to be actually mischievous. We have heard it suggested that a tax in money should be levied on those who are brought up as medical practitioners, in the same manner as on attorneys and solicitors; but such a tax would be of little service to the Chancellor of the Exchequer, and surely one in the shape of a better education would be much preferable.

APPRENTICESHIPS.

The addition of one or two years to the age at which a candidate may be admitted for examination would, however, be of little avail, unless another change were made at the same time. We have pointed out that by the Act of 1815 it is made necessary that an apothecary should have served an apprenticeship. We understand, from the evidence given before the Medical Committee *(page 21 of the Report on the Apothecaries)*, that Mr. Rose, who introduced the bill into the House of Commons, objected to this clause; that it was in consequence struck out; but that it was afterwards inserted in the House of Lords (we believe on the suggestion of one of the bench of bishops). Dr. Burrows, who gives this piece of secret history, says that "the Association of General Practitioners were anxious for the apprenticeship clause, on account of the great difficulty of getting apprentices;" but what could have passed in the mind of the Right Reverend Prelate which led him to this notable piece of legislation, about a year after Parliament had passed an Act abolishing the necessity of apprenticeships in other cases, it is difficult to comprehend: nor is it less remarkable that twenty-five years should have been allowed to elapse without any attempt having been made to repeal a clause so unjust and mischievous.

We use these expressions not unadvisedly. The tendency of the apprenticeship system is always to throw a great impediment in the way of obtaining a good general education; and in a great number of instances to prevent it altogether. The law requires five years' apprenticeship, and the corporate bodies require three years of study in a medical school, making eight years in all. If a young man is to obtain his license (as he may now obtain it) at the age of twenty-one, and serves the full term of his apprenticeship in a village or town, in which there are no lectures and no hospitals, he must be taken from school and apprenticed at thirteen years of age. If the law be evaded, as it sometimes is, by the master giving up two years of the term of apprenticeship, still there are six years left, and the boy is taken from school at fifteen. If the master reside in a large town, in which the apprentice has the opportunity of pursuing his studies in the hospital and lecture-room from the beginning of his apprenticeship, still, even under these more favourable circumstances, under which it can fall to the lot of very few to be placed, he is launched in his profession at the age of sixteen, just as he is entering on that important period in which, in the course of two years, a well-disposed young man will make greater progress with respect to his general education than in all the former years of his life put together.

But these are not the only objections. Is this a just monopoly? Is there no way of learning pharmacy, but by means of an apprenticeship? A member of the Committee asks with great reason, "If young men, in addition to the customary four years of study in the University of Edinburgh, were to pass ten or twelve months exclusively in learning pharmacy, why should they not be permitted to act as general practitioners?"—*(Report on the Apothecaries*, p. 22). And again, "Were a young man to graduate as a bachelor of medicine at Oxford or Cambridge, and afterwards to apply himself to the study of medicine, and from the want of an adequate fortune be at length prevented from practising as a physician, why should he be prevented acting as a general practitioner?" Yet both these descriptions of persons are prevented practising in that capacity under the existing law.

We have not the smallest doubt that a residence for a limited period in the house of an apothecary is likely to be very useful to the student who proposes to enter on the same line of practice; but we cannot conceive that an apprenticeship for five years, or even for three years, is necessary; nor indeed any apprenticeship at all. At all events there are good reasons why the legislature should not interfere with a matter of this kind. It may very well be left to the discretion of the parents and guardians, and of the young men themselves; especially if the Society of Apothecaries require, as they have a right, and indeed as they are bound to do, that the candidates for their license, before they had begun to learn anatomy, or at any rate in in addition to their other studies, should have devoted a certain time to the study of pharmacy.

BOARD OF VISITORS.

Let us suppose that an act of parliament were passed making some such alterations as we have already suggested in the charters of the colleges, and in the apothecaries' act of 1815, and any others which on further consideration of the subject might be found to be desirable; and that the government were authorised to appoint certain persons who should form a Board of Control, or, if they please to give them a gentler appellation, a Board of Visitors, whose office it should be to superintend the concerns of the different medical institutions; and we believe that under such an arrangement all that is required might be accomplished.

The regulations as to the education of medical students, and the licensing of practitioners, should either originate with the Board of Visitors, or should not be valid until they had received their sanction. In like manner they should superintend the appointment of the examiners. Reports should be made to them at stated periods of the individuals to whom licenses have been granted; of the monies received in payment of them; at the same time explaining in what manner these funds have been expended.

At present, when a vacancy has occurred in the Council of the College of Surgeons, the remaining members select the individual who is to succeed to the vacant seat; and this has always, and not without reason, been made a subject of complaint against the constitution of the College. Yet, as matters now stand, we do not see what other arrangement can be made. To throw the election open to the ten or twelve thousand members of whom the College consists would be absurd; and there is no other constituency. If, as we have proposed, another degree were established for those who would be candidates for the situation of surgeons to hospitals or teachers of anatomy, there would, in the course of time, be a body of persons to whom the election might, without inconvenience, be intrusted; and in the meanwhile the objections to the present system might be in a great measure obviated by making the appointments of the Council subject to the approbation of the Board of Visitors; or the visitors might select one from a list of persons submitted to them as properly qualified by the council.

What are called the Elects in the College of Physicians are, with respect to the mode of their appointment, in the same situation as the Council of the College of Surgeons; and the same rule might be applied to them, or otherwise the election of them might be conducted in the same manner as that of the Censors.

But a question will arise as to the exact mode of appointing the Visitors themselves. We would suggest that they should be nominated by the Queen in Council rather than by the Secretary of State, believing that the effect of this would be to remove the appointment, in some degree, from the influence of party politics; and we would further suggest that the Board should consist of two classes of persons, of some who do, and of some who do not, belong to the medical profession.

Being assured that some of the highest interests of society are involved in the state of the medical profession, and knowing that the reflecting members of the profession are not well satisfied with the existing order of things, we confidently hope that those who concern themselves in the management of public affairs will perceive the necessity of giving the subject their early aud serious attention; and in that case it will be by no means difficult for any one, who takes the pains to do so, to fill up the faint outline of the scheme which we have offered to their consideration. We cannot doubt that, if the task of mending the medical institutions be honestly undertaken and pursued, a real and lasting service will be rendered to the public. We are sanguine enough to believe that what is required may be easily accomplished; that the question, if fairly discussed, with a desire to do only what is right and useful, will be found to lie in a narrow compass, and to be surrounded by no difficulties which may not be readily surmounted.

CAUTION TO THE PROFESSION.

MEDICAL IMPOSTORS.

To the Editor of the Medical Gazette.

Sir,

There are two men now in London practising every variety of imposition on the profession. They are so similar in their appearance, that I have little doubt of their relationship, and they are making their visits to the houses of medical men at times when they expect to find them from home. Having been entrapped the other day by one of them, (and he I have no doubt the brother of the one who sent me a few nights since on a fruitless errand to Pentonville,) I deem it right to put the profession on their guard.

Just as I was leaving my house a few days since, a gentlemanly-looking man, short, stout, about 35 years of age, with blue spectacles and in a pilot coat, drove up to my door in a brown private cabriolet, with a dark bay horse. He gave me his card "Dr. Rogers," and stated that he resided in Welbeck Street, Cavendish Square, that he had formerly attended my lectures at St. Bartholomew's Hospital, and also those of Mr. Abernethy, and wishing to examine a book at the British Museum, requested a line or two from me to Sir Henry Ellis to secure that privilege. Recognising in his features an old Bartholomew student, and being pressed for time, I unsuspectingly put my name to a declaration that I believed him to be a medical man deserving of admission to the reading room of the British Museum.

On his leaving my house he dropped a silk handkerchief having the initials J. C., and these not corresponding with the name on his card (Dr. Rogers) awakened my suspicion, now confirmed by finding no such person in Welbeck Street. Believing, therefore, that he has obtained my signature for some sinister purpose, most probably to lead the unwary to suppose that he is known and recognised by me, I hereby caution the profession and public, and give it as my opinion that the man is an impostor.—I am, sir,

Your very obedient servant,

J. T. Conquest.

13, Finsbury Square, Dec. 24, 1840.

CASE IN WHICH SIX PREGNANCIES OCCURRED DURING AMERNORRHŒA.

By Dr. Flechner, of Vienna.

A woman, now 35 years old, menstruated for the first time in her fourteenth year, being then but imperfectly developed. Menstruation continued regular for some time, but then ceased for nine months, during which time many symptoms of chlorosis appeared. She then fell into a feverish condition, which continued for several weeks, but left her in a better state of health than she had previously enjoyed. During her convalescence the catamenia reappeared, and they now observed a regularly periodical type for several years, though still usually accompanied by congestion of blood about the head and chest. In her twenty-second year she married, and during the next year gave birth to a healthy child, which she suckled for only a few months, for her supply of milk then decreased, though no traces of return of the process appeared. Instead of the latter there came on periodically pains in the head, varying in severity and length of continuance, with a sensation of pressure and heat in the frontal and parietal region, and frequently great distress of breathing and palpitation of the heart, or even more or less distinct paroxysms of asthma. Notwithstanding the physiological energy of the uterus seemed completely paralysed, yet after two years she again became pregnant. Gestation and parturition were gone through in the same manner as at the first time; and then, in the place of the catamenia, which were still suppressed, the same train of periodical symptoms again came on. In this way the woman became a mother six times in the course of thirteen years, without a trace of menstrual fluid ever once appearing; and she declared that during this time she had observed neither a blennorrhœa nor any morbid secretion of the uterine or other system, that could be deemed vicarious of the catamenia.

Cases of conception during lactation, before the return of the catamenia, are by no means rarities, and the secretion of milk continned for a year sometimes hinders the secretion of menstrual blood without at all excluding the possibility of conception. But in this case the peculiar condition induced by lactation could have had nothing to do with the suppression of the menses.—*Medicinische Jahrbücher Osters Staates*. Bd. xxx. St. iv.

DAILY REVOLUTIONS OF THE PULSE.

The doctrine of Cullen and other physiologists, that the healthy circulation is subject to a double diurnal excitement, and that the chief period of excitement occurs in the evening, was first disproved by Dr. Knox, in 1816. He found that there was only one diurnal revolution, independently of incidental excitements; that the pulse is more frequent and excitable in the morning on awaking, gradually becomes less so towards evening, and acquires its greatest state of depression about midnight or before going to sleep. The writer having, in ignorance of these investigations, made some experiments of the same nature, a few years afterwards, he can confirm the results at which Dr. Knox arrived, except that instead of observing actual excitement of the pulse in the morning, he found only very marked excitability. Under a careful avoidance of all accidental stimuli, such as food, exercise, mental excitation, and the like, he found no difference whatever either in the pulse or animal heat, in the course of the whole day and night; but on awaking in the morning, there was so great excitability, that trifling stimuli raised considerably the pulse and temperature; after mid-day this excitability gradually decreased; and towards midnight it was lower than at any previous period. It is remarkable, therefore, that the ordinary period of greatest excitement in hectic fever, continued fever, and many other febrile diseases, occurs exactly at the time when there is the least excitement or excitability in the healthy state of the functions.—*Dr. Christison, in the Library of Practical Medicine*, vol. i. p. 287.

WHITE SLAVE-D IVING.

The following occurs in the evidence of William Rastrick, before Mr. Sadler's Committee in 1832.

Was it not found necessary to beat children to keep them up to their employment? Certainly.

Did the beating increase towards evening? Their strength relaxes more towards the evening; they get tired, and they twist themselves about on their legs, and stand on the sides of their feet.

When you were employed as an overlooker, and had to superintend those children, was not the employer aware that you had to stimulate them up to labour by severity? Certainly he was, and it is always considered indispensable.

Would he himself rather urge you to that course than to the contrary? His object was, in every case, to get a certain quantity of work done; it must be done by some means or other; but when it was necessary for the overlooker to use severity, he had to bear the stigma of it, and not the master.

Did you not find it very irksome to your feelings, to have to take those means of urging the children to the work? Extremely so; I have been compelled to urge them on to work when I knew they could not bear it; but I was obliged to make them strain every nerve to do the work, and I can say I have been disgusted with myself and with my situation; I felt myself degraded and reduced to the level of a slave-driver in such cases.

Is not tying the broken ends, or piercing, an employment that requires great activity? Yes.

Does not the material often cut the hands of those poor children? Frequently; but some more than others. I have seen them stand at their work, with their hands cut, till the blood has been running down to the ends of their fingers.—*Evils of the Factory System demonstrated by Parliamentary Evidence*. By Charles Wing, Esq. (A useful work).

CASES FROM THE DANISH MEDICAL REPORTS.

The following cases occurred in the practice of Dr. Mürer, of Lyngby:—

1. *Contraction and thickening of the intestines.*—An old woman, who had suffered for a short time from constipation, discharged small and hard fæces with difficulty, but without considerable pain, and frequently not until a suppository had been employed. Several laxatives, croton oil internally and externally, oily clysters, and even the use of an elastic tube were without advantage. The elastic tube caused much pain, and could not be introduced more than three or four inches. The abdomen became tympanitic, and the patient, who was 84 years old, died after a short struggle. On examination the great intestines were found much distended with air, the sigmoid flexure of the colon filled with small hard fæces, and above it there was so narrow a stricture of the gut, that not even a sound could be passed. There was no volvulus, but an almost cartilaginous thickening, about half an inch thick, and two inches long.

2. *Two remarkable monstrous births.*—One of these monsters had no cranium; the brain hung in its membranes like a bag, the ossa bregmatis were entirely wanting, and, of the other bones of the head, the lowest only were present, with many unusual inequalities and thickenings of the edges; the ears were very misshapen, but the child was otherwise well formed, and at its full time. In the other case a considerable part of the ossa bregmatis was wanting; the child was born dead, and had a misshapen jaw, *(wolfsrachen);* nearly the whole of the os palati was wanting, and the nose and lip were unusually cloven. So far, therefore, its development had been arrested; but, on the other hand, there were six fingers on each hand, and six toes on each foot. The mother said that in the third month of her pregnancy, she suddenly saw a stone-cutter, who had a very deformed face, or what is called, a half-face, which frightened her so much that she fell into a swoon.

Transposition of the viscera.—Dr. Ewertzen, of Hilleröd, reports a medico-legal dissection of a boy nine years old, in whom several viscera of the abdomen (namely, the spleen, the transverse portion of the colon, and parts of the small intestines), were found in the thorax. He supposes they had been there from birth.

Tetanus cured by morphia.—Dr. Schiötz, of Rotschild, mentions a patient with tetanus, which had probably arisen from cold, and which was cured by the endermic application of the acetate of morphir. Half a grain was applied three times a day to a spot on the back, from which the cuticle had been removed.

Dr. Möller, of Helsingör, reports two cases. The first was a peculiar inflammation of the thick skin covering the heel, occurring in a woman of 45. Menstruation had ceased, but the woman had suffered from violent leucorrhœa, which had been cured by suitable remedies, after which she was quite well for some time.

A copious and very fetid suppuration was produced by emollient poultices, to which solution of chlorine was afterwards added; and a cure was at last effected by the internal use of carburet of iron (black lead) after the whole of the thick skin had separated. Something similar appeared on the hands likewise. The patient has been well ever since.

2. *Ioduret of potash in syphilis.*—In a case of inveterate syphilis with tophi, violent pains at night, and sleeplessness, Dr. Möller used ioduret of potash with evident mitigation of the symptoms. Two drachms were dissolved in 8 ounces of water, and the dose was a tablespoonful four times a day. Dr. Möller convinced himself of the effect of the remedy on the system by a chemical examination of the urine; and when the patient had taken an ounce of the salt, he was freed from his complaints, got an appetite, slept well, and was better, as he said, than he had been for many years. He had been previously treated with mercurials and other remedies, by different physicians, and is now perfectly well.

Dr. Klem, of Helsingör, reports as follows —

1. *Indigo in epilepsy.*—Among the remedies which have been most recommended against epilepsy, I have seen the root of the Artemisia vulgaris very beneficial. On the other hand, in the case of a man aged twenty-five, who had been treated in vain with this and other medicines, indigo, in the dose of ten and fifteen grains four times a day, was so advantageous that the fits, which had previously occurred almost daily, did not take place for a whole month.

2. *Aqua lauroceras in Gastralgia.*—When nervous pain of the stomach has not yielded to the magistery of bismuth, (the trisnitrate) which is commonly an excellent remedy, I found cherry-laurel water very useful, sometimes given alone, in the dose of twelve drops four times a day, and sometimes with a fourth part of acid elixir [dilute sulphuric acid ?] In a couple of cases, where the pain was sometimes violent, and even the mildest food was vomited, and where there was pain on pressure, so that I suspected rheumatic inflammation of the stomach, the cherry-laurel water was not borne, but prussic acid effected a perfect cure. The dose was from four to six drops of the preparation of the

Holstein Pharmacopœia, every three hours, together with infusion of salep, leeches, and narcotic fomentations.

3. *Two remarkable mercurial salivations.*—The first case was that of a woman aged 45, and the origin of the salivation was quite a riddle to me, as she had not used any remedy to cause it either internally or externally. At last her husband confessed that, to drive away vermin, he had rubbed quicksilver and fat on several parts of his body; and I am compelled to suppose that the evaporation of the mercury in bed produced salivation in the woman, who is of a leucophlegmatic habit.

The second case occurred in a weakly girl of twelve, and it was not possible to learn from the parents what was the cause of it. It disappeared under the use of suitable remedies, though it had reached such a point that blood flowed out of the sores in the mouth, and great attenuation took place. I then prescribed the tincture of iodine, (ʒss. in ℥iv. of water, with mucilage; ʒij. to be taken every two hours), alternating with decoction of bark, and decoction of elm, to rinse the mouth with; and in a few days the disorder had disappeared. The girl soon recovered her strength*.

Dr. Raon, of Helsingör, reports the following case:—

Violent convulsions in a puerperal woman, which continued after delivery.—The woman, who had been in excellent health up to the day when she expected to be confined, was suddenly attacked with vomiting and spasms, which soon attained a frightful height; her face was swollen and pale; her eyes fixed and red; foam issued from the mouth; her respiration was stertorous, and the pulse quick and tense. The bowels were open. The paroxysms returned every quarter of an hour. Meantime, she was delivered by the forceps; the child was dead, and unusually small, but at its full time. Antispasmodic remedies could not be swallowed. Bleedings, clysters of assafœtida and laudanum, and rubbing the abdomen with camphorated oil, did no good; the spasms continued after delivery. Ten leeches were applied to the temples, venesection was repeated, and morphia was administered endermically, at the pit of the stomach. Yet, though the lochia were regular, and the body open, the convulsions returned every quarter or half hour for two days. They then ceased, but were followed by wild phantasmata, which did not cease till the ninth day after delivery. For four days the woman was perfectly speechless.

THE LATE DR. RYAN.

(From a Correspondent.)

We sincerely regret to hear that the late Dr. Ryan has left a widow and four infant children in a most destitute situation. The following letter has been addressed to the widow on the part of the Metropolitan Free Hospital, of which Dr. Ryan had been a physician.

[The letter is highly complimentary to the deceased, and we regret that we cannot make room for it.]

Dr. Ryan was well known as a medical journalist and teacher. The case of his family is one which we think will excite the sympathy of his medical brethren and the public. We understand the friends of the family are already exerting themselves in endeavouring to raise a fund for the purpose of placing his widow in a situation to support herself and her children.

ROYAL COLLEGE OF SURGEONS.

LIST OF GENTLEMEN ADMITTED MEMBERS.

Tuesday, December 22, 1840.

E. Twining.—A. J. Cridland.—W. Bulman.—T. Clarke.—T. F. M'Nay.—C. J. Cooke.— R. D. Shield.—J. Edwards.—J. Dixon.—E. H. Chase—N. Lyttleton.—H S Wilmott.—G Banister.

APOTHECARIES' HALL.

LIST OF GENTLEMEN WHO HAVE RECEIVED CERTIFICATES.

Thursday December, 10, 1840,

W. Craddock, Somersetshire.—W. Stoker, Durham.—Z. P. Pocock.—Hailsham.—C. Perfect, Pontefract.—W. Briggs, Manchester.—James Davies, Wiltshire.

METEOROLOGICAL JOURNAL.

Kept at Edmonton, *Latitude* 51° 37 32" *N.*
Longitude 0° 3 51" *W. of Greenwich.*

Dec.	Thermometer		Barometer	
Wednesday 23	from 14	to 30	30·09	to 30·01
Thursday . 24	19	36	29·98	30·09
Friday . . 25	19	33	30·19	30·28
Saturday . 26	12	31	30·41	30·48
Sunday . . 27	25	35	30·48	30·44
Monday . . 28	33	24	30·30	30·22
Tuesday . 29	18	35	30·13	30·18

Wind N.E. on the 23rd and two following days; South on the 26th; N.E. on the 27th; East on the 28th; and N.W. on the 29th.

Except the 23d and two following days, overcast; a little rain fell between seven and eight on the evening of the 29th.

Charles Henry Adams.

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* It does not clearly appear whether the tincture of iodine was to be swallowed, or used to rinse the mouth; if the former, the doses seem too large.—Translator's Note.

Wilson & Ogilvy, 57, Skinner Street, London.

THE

LONDON MEDICAL GAZETTE,

BEING A

WEEKLY JOURNAL

OF

Medicine and the Collateral Sciences.

FRIDAY, JANUARY 8, 1841.

LECTURES
ON THE
PRINCIPLES AND PRACTICE OF PHYSIC,

Delivered at King's College, London,

BY DR. WATSON.

LECTURE XVI.

Dropsy: its general pathology. Passive dropsy; cardiac, and renal. Active, acute, or febrile dropsy. General principles of treatment in dropsies.

THERE remains now only one subject, of the pathology of which it will be convenient and, I hope, instructive, to take a short general view, before we enter upon the consideration of special diseases. I proceed to speak of *Dropsies: i. e.* of serous effusions into one or more of the shut cavities of the body, or into the cellular tissue, or into both; independent of inflammation.

We have already considered serous effusion occurring as an effect or event of inflammation. We are commonly able to say of this, that it *has* originated in inflammation; either from its being mixed with some of the less equivocal *products* of that disease, such as coagulable lymph; or from its having taken place while *symptoms* of inflammation existed. But there are numerous examples of serous accumulation, which cannot with any shew of reason be regarded as events of inflammation. It is to these that I would apply the simple term dropsy.

It has been said—and said with much truth—that dropsy is rather a symptom of disease, than a disease in itself. And it has been affirmed that it would be more philosophical and scientific to treat of the original malady upon which the effusion or accumulation depends; to erase dropsy from the list of substantive diseases, and to place it in the catalogue of mere symptoms.

But this, in my mind, is a very mistaken view of the matter. For, first, it is oftentimes uncertain, while the patient is yet alive, what or where the primary disease may be; and even after death we sometimes can discover no organic change that would satisfactorily account for the effusion. Practically speaking, in such cases the dropsy *is* the disease, and the sole object of our treatment.

And, secondly, dropsy is, in fact, to a medical eye, in *all* cases, something more than an effect or symptom of disease. The imprisoned liquid is often a *cause* of various other symptoms; embarrassing, by its pressure, important functions, and even extinguishing life. The removal of the dropsy (although its original cause, of which it was a symptom, may remain behind, untouched, to be again productive of effusion under circumstances favourable to its operation)—the removal of the dropsy will often restore a person to comparative comfort; or even to what, so far as his sensations, and powers, and belief are concerned, *is*, to him, for the time, a state of health.

You see then, already, that in a dropsical person, whose dropsy depends upon organic disease, there are two sets of symptoms to be distinguished: viz. those which depend on the primary disease; and those which depend on the collected fluid. The latter, often the most grievous, are often to be got rid of: the former, frequently permanent, are frequently also but little complained of or felt by the patient, except when effusion is the result.

Some persons, I fancy, have regarded dropsy as a less attractive subject of investigation than it might be if it were less frequently, in its nature, incurable. But as far as the dropsy itself is concerned, the complaint often *is* curable; and there are some forms of dropsy that are curable in a more absolute sense: that is, both the effusion, and that condition which was the physical cause of the effusion, are sometimes remediable.

Besides, it is our business to cure when we can; but whether we can cure or not, to relieve and palliate human suffering; and this, under Providence, we are able to do, in many or most cases of dropsy, to a very considerable extent.

Wherever there is a shut sac, or wherever there is loose and permeable cellular tissue, there we may have dropsy.

Thus there may be dropsy of the ventricles of the brain, or of the meshes of the pia mater, leading to death by *coma*: of the pleuræ, of the cellular texture of the lungs, or of the submucous cellular tissue of the glottis, any of which may cause death by *apnœa*; of the pericardium, producing death by *syncope*. I mention these instances in particular, to shew that almost every mode of dying may result from dropsical effusion; and to win your attention to a disorder so full of peril.

When the cerebral ventricles are distended with water, we express the diseased condition by the term *hydrocephalus*. When serous liquid collects in the pleuræ, or in the pericardium, we say that the patient has *hydrothorax*, or *hydropericardium*. If the cavity of the peritoneum be the seat of the effusion, we call the complaint *ascites*. When the cellular tissue of a part becomes infiltered with serous fluid, the part is said to be *œdematous*; and *anasarca* is the name given to the more or less general accumulation of serum into the cellular tissue throughout the body, and especially to visible subcutaneous œdema of considerable extent. Finally, the term *general dropsy* signifies the combination of anasarca with dropsy of one or more of the large serous cavities.

Other local dropsies indeed there are, but, as they belong entirely to surgery, I need not enumerate them.

General pathology of dropsies.—Now what reasonable account can be given of these remarkable conditions? How is it that the hollows and interstices of the living body, or of parts of the body, became thus water-logged?

To solve this question, we must carry in our minds some physiological recollections.

The closed cavities or cells within which the fluid of dropsy is confined, are kept moist, during life and health, by a continual serous secretion from their surfaces; and they are kept *merely* moist, for the fluid thus constantly secreted is as constantly reabsorbed into the circulation.

When these cells or cavities, without having undergone inflammation, become filled and distended with the serous fluid which they habitually secrete, one of three things must have happened. Either the quantity of fluid exhaled has been augmented, the absorption remaining the same; or, the absorption has been diminished, the exhalation continuing the same; or else the exhalation has been increased while the absorption was either lessened or not proportionally increased at the same time.

The last is a mixed case; and we need only consider the two first.

Now the balance between exhalation and absorption is often deranged, and dropsies do actually arise, in each and all of these ways.

It will best suit my purpose to speak first of those dropsies which are occasioned by defective absorption, and which are usually called chronic or passive dropsies.

The direct agency of the blood-vessels in the production, as well as in the removal, of dropsy, although indicated by many common and obvious facts, has not been generally recognized till a comparatively recent period. Perhaps I should rather say that more importance used to be assigned, in these respects, to the agency of the lymphatic absorbents, than they are really entitled to. You will find that pathologists, even in modern times, speak of a want of tone, of deficient energy, in the absorbents, as a cause of dropsical accumulations; the superfluous fluid of the part is not adequately taken up (they say) by the enfeebled absorbents, meaning the absorbents strictly and anatomically so called. And this view of the matter, connecting dropsy always with debility as its cause, has led to a corresponding plan of treatment: the object aimed at being the stimulation of the absorbents to more energetic action.

But to the doctrine that dropsy is a consequence of the deficient action of the absorbents, this obvious difficulty presents itself,—that absorption really goes on, and goes on very actively, in dropsical patients: their adipous matter disappears, they become wretchedly thin. There is no complaint in which wasting and emaciation go to a greater extent than in dropsy. You will find also that persons labouring under anasarca are readily enough affected by mercury; which must of course be absorbed before it can produce any of its specific effects.

It must be confessed that our knowledge respecting the mechanism of absorption is neither complete nor certain; but there is good reason for supposing that the process is shared among the lacteals, the lymphatics, and the *veins*; and it is probably distributed between these sets of vessels somewhat in this manner;—that the lacteals absorb the chyle from the surface of the alimentary canal, and convey into the blood the materials of its renovation; that the office of the lymphatics is to take up and carry into the blood those old and effete portions of the solid constituents of the body, which require to be removed to make way for a fresh deposit; while the veins imbibe the serous fluid exhaled from the surfaces of serous membranes, and into the meshes of the cellular tissue, as well as poisons and other substances that are soluble and dissolved in that fluid.

If this be so, the difficulty just now mentioned vanishes. Of the two sets of absorbing vessels, the lymphatics and the veins, one set may continue to perform its functions, while the other fails to do so. This theory is quite consistent with the actual phenomena of dropsical disease; and whether it be altogether true or not, a part of it is certainly true; that, namely, which assigns to the veins a *large* share in the whole process of absorption. The experiments of Magendie and of others are quite conclusive upon that point.

It has also been fully established, that fluids may and do pass into or out of the veins, in the living body, not by any vital process, but by mere physical imbibition and transudation, through the coats of those vessels; that when the veins are distended to a certain degree with watery fluid, the entrance of more of the same fluid, through their sides, is impeded or prevented; that, when the distension is still greater, the aqueous part of the blood may even pass in the other direction out of the vessel; and that, on the other hand, when the veins are comparatively empty, the surrounding serous fluid passes readily into them, or, in common language, is absorbed. The venous absorption is explicable therefore upon the principles of *endosmose* and *exosmose*, as laid down by Dutrochet; or I would rather say, according to the more general and more simple laws of *heterogeneous attraction*, as explained by Professor Daniell.

Imbibition, being a form of that attraction, belongs in various degrees to all the tissues of the body. Its rapidity—and even its direction in respect to the elastic coats of a vessel surrounded by fluid, and also carrying fluid of a certain consistence—will vary with the varying distension of the vessel. When the vessel is moderately full, the exterior fluid passes uninterruptedly inwards, and is conveyed away by the internal current. When, on the other hand, the vessel is kept much distended by its contents, the contained fluid, or its thinner part, passes continually outwards; and there is an intermediate degree of distension, at which the pressure is just sufficient to prevent the transit of fluid in either direction. Magendie found, accordingly, in a well-conducted and conclusive series of experiments, that by regulating the conditions of comparative emptiness or fulness of the circulating system, he could accelerate, retard, or suspend altogether, the operation of a poison dissolved in the humours of the body. In other words, he could thus accelerate, retard, or prevent, the process of absorption or imbibition through the blood-vessels.

Bearing these physiological truths in remembrance, we shall have no difficulty in shewing that the chronic forms of dropsy are attributable partly, and chiefly, and in many instances entirely, to undue plenitude of the veins; and that this venous repletion is produced, almost always, by some impediment to the free return of the blood towards the heart.

Passive dropsy from venous obstruction.—When the cellular tissue of a limited part of the body becomes filled and distended by serous liquid, we call the swelling *œdema*: but this is exactly the same, in its nature, as anasarca. Now œdema is often the consequence of some mechanical obstruction to the venous circulation. We can produce it whenever we will. Our countryman Dr. Lower, 170 years ago, tied the jugular vein of a living dog. When a few hours had elapsed, he observed that all the parts beyond the ligature, reckoning from the heart, were much swollen: and upon dissecting the animal after death he found that the cellular tissue of the head and face was filled, not with red blood, as he had expected it might be, but with clear and limpid serum. On another occasion he placed a ligature upon the vena cava, just above the diaphragm: death soon ensued, and a large quantity of water was discovered in the cavity of the peritoneum.

Precisely similar phænomena succeed the compression or obliteration of a large vein in various parts of the body. In operating for popliteal aneurism, Mr. Travers was obliged to tie the femoral vein: the cellular tissue of the limb was speedily infiltered with serous fluid. Long-abiding œdema of one foot and ankle has been cured at once by the reduction of a crural hernia, which had been pressing for the same length of time upon the femoral vessels. You have heard, most probably, of the disease called *phlegmasia dolens*; a disease that is very common in women soon after childbirth, although it is not peculiar to them, nor to the female sex. The foot, leg, and thigh, become enormously œdematous. The essence of this disorder is inflammation of the femoral vein, which blocks up that vessel near the groin, and retards or precludes the return of the venous blood from the limb. One arm often swells in the same way, and from a similar cause, in women who are afflicted with cancer of the breast. In pregnancy, the gravid uterus sometimes presses upon the iliac veins, and obstructs the current of blood within them: the consequence is, anasarca of the lower extremities, which disappears as soon as the pressure is removed by the delivery of the woman. The flow of blood through the vena portæ is frequently hindered, by disease in the liver, or by other causes; and serous liquid accumulates in the peritoneum, constituting ascites. A French physician, M. Tonnellé, narrates several cases in which serosity was found in the cavity of the arachnoid, in conjunction with obliteration of the venous sinuses of the dura mater. In all these instances we have retardation of the venous current, undue plenitude of the veins, and dropsy of the part from which they proceed. The natural exhalation goes on, and the exhaled fluid collects and stagnates, because the channel through which it ought to be drained away is choaked up. The larger the vein, and the nearer we approach the heart, the more extensive is the dropsical accumulation: and if we could plant an obstacle at the very termination of the venous stream, we should dam up the blood in the whole system of veins, and produce a general dropsy.

Such an obstacle is frequently placed there by disease. The returning blood is checked at its entrance into the heart; at the confluence of all the veins of the body, where they unite to empty themselves into the right chambers of that organ: and then anasarca of the universal cellular tissue comes on, and water collects in all or most of the great serous cavities.

It is no part of my present purpose to inquire how such disease of the heart as is productive of dropsy, arises. Commonly we find the right auricle and ventricle enlarged in capacity, the opening between them unnaturally wide, and the tricuspid valve unequal to its office of closing that aperture. Such a morbid state of the right heart may be occasioned by any cause which impedes the flow of blood *out of* its cavities. The diseased condition of those cavities may be primary; but it is oftener perhaps consecutive to other disease. It may be produced by disease of the lungs, preventing the right ventricle from freely delivering its contents into the pulmonary blood-vessels. Or the retarding cause may be still more distant, in the left side of the heart, keeping the pulmonary blood-vessels unduly full, and thereby hindering indirectly the escape of the blood from the right ventricle. The dropsy may ultimately depend, therefore, upon some bar to the circulation placed even at the mouth of the aorta. Obstacles situated any where in the circuit formed by the right heart, the lungs, and the left heart, have the effect of producing secondary changes in the parts behind them. But disease, thus propagated in a direction retrograde to the course of the blood, is propagated gradually, and sometimes very slowly. These are points of much interest, which we shall investigate together by and by. I allude to them now, that you may not be perplexed by a knowledge of the fact, that diseases of the heart often exist for a long while without inducing dropsy. It is with disease of the right side of the heart, whether primary or secondary, that passive dropsy is especially associated.

As if to furnish the *experimentum crucis* in respect to this doctrine, disease does sometimes, with a curious precision, dam up one only of the two great venous trunks, at the junction of which the left auricle is placed: and then the dropsy is as curiously limited to that half of the body in which the tributary veins of the obstructed trunk originate. The first example of this which I ever saw was a most remarkable one. The patient was dropsical in his upper half only. His arms were so hugely anasarcous that he could not bring his elbows near his sides; his neck and face were hideously bloated and exaggerated, and his eyes prominent and staring; while his lower limbs were of their natural size, and appeared preposterously small and out of proportion. The poor man looked as if the upper part of his body had been stuffed, for acting some ridiculous part upon the stage. The cause of this strange and distressful state was found to be the obliteration of the vena cava superior, close to the auricle. Its sides had been pressed together by a large aneurism of the aorta; and a portion of the vein was fairly sealed up. I have seen two similar cases since.

Objections have, however, been taken to the accuracy of the conclusions drawn from such cases as I have related; and it is fit that you should be aware of them. Thus it is stated that veins have been found obliterated, and yet there was no dropsy. Now to this objection it may be answered, in the first place, that it is not every vein, the obliteration of which would cause manifest œdema. It must be the principal venous trunk of the part concerned. When some of the secondary and smaller veins alone become impervious, the blood may reach, and return by, the primary branches with sufficient readiness to relieve the turgid capillaries, and prevent any serous accumulation.

But (it may be said) the principal vein itself has been found converted into a solid cord, and still there was no dropsy. Granted: but it does not follow that there never *had been* dropsy. You know that when a large artery is tied, the circulation is carried on in the corresponding limb, by means of collateral arterial branches: imperfectly indeed at first; but at length, as the supplemental channels become more numerous and free, the supply of blood to the limb is as copious as ever. It is precisely the same, *mutatis mutandis*, with the veins; only that the anastomosing venous tubes are not (perhaps) so readily developed as the arterial. Now I am not aware of any instance in which it has been shewn that the principal vein was obliterated, and yet there neither was, nor had been, any œdema of the limb. The recorded cases have been met with in dissecting rooms, and the previous history of the subject has been unknown or unregistered. Mr. Kiernan has told me that he once examined the body of a woman who had excited much curiosity among the medical men by whom she had been seen during life, on account of a remarkable and enormous dilatation of the superficial veins of the abdomen. She was not dropsical, and the cause of the huge varix was sought for with great interest after her death. The inferior cava was obliterated. Here the compensating result was obvious to the sight; the new channels had answered their purpose, and performed the functions of the original channel. The history of this case was incomplete: it was not ascertained whether the woman had always been free from dropsy.

I hold this objection therefore to be invalid, until some authentic instance shall be brought forward of the obliteration of a large venous trunk, without a corresponding accumulation of serous fluid, either at the time when the observation is made, or at some previous time in the life of that individual. It is, besides, possible enough, that the obstruction of a large vein may be effected gradually, by the slow encroachment, for instance, of a growing tumour; and the collateral circulation may begin to be enlarged with the first impediment in the vein, and may keep pace with and counterbalance that increasing impediment, till the closure of the vessel is complete; so that, from first to last, there may be no noticeable dropsy.

Again, it is affirmed, and truly affirmed, that anasarca often occurs, without any obliteration of veins, and independent of any discoverable organic disease in the heart, or anywhere else. We see this every day, in weak chlorotic girls, with bloodless cheeks, and pale lips. Some of you saw a case of this kind which was lately under my care in the hospital; besides the anasarca, the systolic sound of the heart was accompanied by a loud, unmistakeable bellows sound. This girl got quite well, and left the hospital without bellows sound, or any other trace of disease. There could not then have been an organic change: in fact there was not. Yet was there, virtually, a retardation of the venous circulation: not by any mechanical obstacle opposed to its course, but in consequence of the debility of that hollow muscle, the office of which is to propel onwards, with a certain degree of force, the blood that reaches it. Girls of this description have weak and flabby voluntary muscles; and it is reasonable to presume that the involuntary muscle, the heart, partakes of the general debility of the muscular system, and becomes incapable of sending the blood forwards with the requisite energy. Nay, I believe that a heart thus feeble may yield a little and dilate under the resisting pressure of the blood that enters its chambers; and that so an occasional but temporary bellows sound may arise, from the altered relation between the cavities of the heart and their outlets. Certainly this view of the matter is strengthened by the *juvantia* and *lædentia*. If you are tempted, by the pain complained of by your patient, or by the violence with which her heart is throbbing, to take away blood, you find that she is ultimately made worse by the depletion; on the other hand, if you give her steel, feed her well, keep her bowels free, and place her every morning under a cold shower bath, you find that she recovers her lost strength, that colour returns to her lips and cheeks, that her palpitations cease, and her dropsy vanishes. In proportion as the muscular system in general receives fresh tone and vigour, does that particular muscle the heart also regain the degree of power necessary for the effectual discharge of its proper function, which is very much that of a forcing pump. Such is the way in which I should explain both the cause of the dropsy, and the cause of its cessation. In such cases our patients do not simply *recover*; they are *cured*. I should apply a similar explanation to some other forms of dropsy. Andral describes a certain *cachectic* disposition of the body to be a cause of dropsy; persons may be bled into a dropsy, and starved or weakened into a dropsy. These are genuine instances of dropsy from debility, such as the ancients conceived all dropsies to proceed from. It may be that the thin and watery quality of the blood induced by frequent bleedings, by insufficient nourishment, by certain poisons, or by other causes, may facilitate its passage through the coats of the veins. But admitting this as a concurrent cause, I am disposed to the belief that all passive dropsies occurring under the circumstances just adverted to, and without any apparent organic disease or change, are mainly to be ascribed to debility of the heart: and viewed in this way, they are all brought under the same general principle; viz., the retardation of the blood in the veins.

General Dropsy, cardiac or renal.— A large class, then, of passive dropsies, depending upon mechanical congestion, and defective absorption by the veins, are traceable, in their origin, to the heart; and we call them, accordingly, *cardiac* dropsies. But another class, perhaps as numerous, are connected in a remarkable manner with certain diseased conditions of the kidneys; and these, for the sake of distinction, we style *renal* dropsies. I shall say a few words respecting them, after I have briefly considered the other source of dropsical swellings, adverted to in the commencement of this lecture; namely, excessive *exhalation* of serous liquid. Dropsy so caused comes on suddenly and tumultuously, and is spoken of as being *acute* or *active*. It borders closely upon inflammation, and sometimes can scarcely be discriminated from inflammation with serous effusion. The condition of the capillary circulation is supposed to be intermediate between that in which the ordinary amount of secretion is maintained, and that in which inflammatory effusion takes place. The excessive increase of secretion is analogous to what we observe in other parts and predicaments of the body; to the abundant perspirations, for example, that are occasioned by violent exercise: to the plentiful flow of tears caused by any irritation of the eye, or by the passion of grief; to the augmented watery discharges from the mucous membrane of the bowels, produced by purgative medicines; all of which may be independent of inflammation, but all of which are attended with congestion that might readily be pushed into inflammation. In point of fact, if the secretions to which I have now referred were poured into closed cavities, instead of proceeding from surfaces that are situated on the exterior of the body, or communicate readily with the exterior, they would *constitute* dropsies.

Active dropsy.—The phænomena of active dropsy are of this kind: a labourer is engaged in some employment, which, while it requires considerable bodily exertion, and causes copious perspiration, necessarily exposes him also to the influence of external cold and moisture: he has been digging (perhaps) in a wet ditch, in winter time, and he pauses to take his meal; or he has been unloading a waggon, and rides home, some miles, in a heavy rain that wets him to the skin; or he has been mowing, in the heat of summer, and lies down to sleep upon the damp grass. All these suppositions are derived from actual occurrences. The perspiration is suddenly checked; and in the course of a few hours he becomes universally anasarcous. Again, a patient recovering from scarlet fever ventures out into a cold atmosphere, while the process of desquamation is yet going on; and he is attacked with dropsy of the cellular tissue, and, it may be, of some of the larger cavities also. The urine at the same time is observed to be scanty, troubled, mixed with blood.

To comprehend this rapid change from a state of health to a state of dangerous disease, we must again have recourse to the findings of physiology.

Besides the constant exhalation that takes place from the inner faces of the shut serous cavities, a large amount of watery fluid is continually thrown out of the system, by all those surfaces that communicate with the air; by the skin, the lungs, the bowels, the kidneys. Now it is well ascertained that when the excretion of aqueous fluid from one such surface is checked, the exhalation from some other surface becomes more copious. It is probable that the aggregate quantity of water thus expelled from the system in a given time, cannot vary *much*, in either direction, without deranging the whole economy. But we are sure that the amount furnished by any excreting surface may vary and oscillate within certain limits consistent with health, provided that the defect or excess be compensated by an increase or diminution of the ordinary expenditure of watery liquid through some other channel. Sound health admits and requires this shifting and counterpoise of work between the organs destined to remove aqueous fluid from the body. This supplemental or compensating relation is more conspicuous in regard to some parts than others. The reciprocal but inverse accommodation of function that subsists between the skin and the kidneys affords the strongest and the most familiar example. In the warm weather of summer, when the perspiration is abundant, the urine is proportionally concentrated and scanty. On the other hand, during winter, when the cutaneous transpiration is checked by the operation of external cold, the flow of dilute water from the kidneys is strikingly augmented. All this is well known to be compatible with the maintenance of the most perfect health. But supposing the exhalation from one of these surfaces to be much diminished, or to cease, without a corresponding increase of function in the related organ, or in any excreting organ communicating with the exterior, then dropsy, in some form or degree, is very apt to arise. The aqueous liquid thus detained in the blood-vessels, seeks and at length finds some unnatural and inward vent, and is poured forth into the cellular tissue, or into the cavities bounded by the serous membranes.

Dropsy of one part sometimes supervenes suddenly upon the rapid disappearance of a watery collection from another part. It is no uncommon thing to see the swollen unwieldy legs and thighs of an anasarcous patient quickly unload themselves, and resume their natural bulk and symmetry. His friends congratulate him, and each other, that his disease is leaving him; but as his legs are emptying, he becomes drowsy, forgetful, comatose, apoplectic; and after his death we find the ventricles of the brain distended with serous fluid.

Or the dropsical accumulation may be transferred from its place through a safer channel. The best instance of this that occurs to my recollection I heard related by Dr. Farre. A gouty individual had hydrocele; dropsy of the tunica vaginalis. After the disease had lasted for some time he got very drunk one evening, with rack punch, which greatly disordered his alimentary canal, and brought on a kind of cholera. He had profuse vomiting and purging, which quite exhausted him: and at length he fell asleep. When he awoke in the morning he found that his hydrocele, which had been a large one, was gone: and it never returned. Such an accidental cure is most instructive.

If water be injected, in some quantity, into the blood-vessels of a living animal, the animal soon perishes; dying generally by coma, or by suffocation: and when the carcass is examined, the lungs are found to be charged with serous liquid, or water is discovered in the cellular tissue of some other part, or in the shut serous membranes. If, however, the animal be first bled, and then a quantity of water be injected equal to the quantity of blood abstracted, the injection is followed by no serious consequences.

Facts like these throw, as it seems to me, a strong light upon a confessedly obscure part of pathology. It appears that under various circumstances the blood-vessels may receive a considerable and unwonted accession of watery fluid; and that they are very prone to get rid of the redundance. When they empty themselves through some free surface, their preternatural distension is relieved by a flux: if, on the other hand, the surface be that of a shut sac, in discharging their superfluity they cause a dropsy. Why sometimes this organ, and sometimes that, is selected as the channel by which the superabundant water shall be thrown out of the vessels, we can seldom tell. We often find it difficult to determine which of the two facts in question is to be considered the antecedent, and which the consequent. For not only is it true that when the blood-vessels become overloaded with serous fluid, they readily deposit a part of it; but also that when they are in the opposite condition of comparative emptiness, when they contain less blood than is natural, they are equally ready to replenish themselves by absorbing fluids from any source to which they can find access. In the case of the man who was cured of his hydrocele upon the occurrence of profuse watery discharges from the stomach and bowels, it seems clear that the expenditure of serous liquid from one part led to its absorption into the blood from another. When anasarca suddenly leaves the extremities, and fatal coma follows, it appears probable that the absorption is the first of the changes, and the effusion the second: and had this effusion been determined to the mucous membrane of the intestines, to the skin, or to the kidneys, it would have brought relief and safety to the patient, instead of causing his death.

We have obtained, then, a glimpse of one or two most important principles in respect to the pathology of dropsy. The blood-vessels, when preternaturally full of aqueous fluid, have a strong tendency to empty themselves; when preternaturally empty, they readily drink up watery fluid wherever they come in contact with it. From the discharge of their superfluity of water arises a dropsy, or a flux. The cause, and the cure, of many dropsies, lie in these propositions.

The application of these principles to the supposed case of active dropsy must be obvious. No doubt, in some such cases, actual inflammation takes place; but in many of them there is merely the dropsical effusion, without any other trace or evidence of inflammatory action. The two facts which it chiefly concerns us to remark are these—first, that the aqueous portion of the blood, which in health is habitually carried off to a very considerable amount by the skin, is suddenly diverted from that tissue; the perspiration, sensible and insensible, is suppressed: and secondly, that the cellular tissue, or the large serous bags, or both, become filled with serosity.

It is not by any necessity, however, that the vicarious excretion is turned upon these serous surfaces. In truth, the intercepted perspiration more often escapes, or labours to escape, from some free surface; and then we have, not a dropsy, but a flux. Diarrhœa, for example, is more common, under the supposed circumstances, than anasarca or ascites: apparently because there is a closer analogy of structure, and a more direct consent or agreement in function, and a stronger reciprocal influence between the skin and the mucous membrane of the alimentary canal, than between the skin and the serous tissues.

Brief allusion has been made to a large class of chronic dropsies, connected with and dependant upon a peculiar renal disease. This important species of dropsy will require a detailed examination hereafter. It is more complex, and of more obscure pathology, perhaps, than *cardiac* dropsy. It certainly has a more direct relation also to what I have just been describing as active dropsy: of which it may almost be regarded as the chronic form. Sometimes the kidney disease, of which the dropsy is an incidental and not an essential symptom, springs up silently, and without obvious cause. Sometimes it may distinctly be traced back to its origin in an attack of acute dropsy; in which complaint the kidney always and manifestly labours, its functions being violently deranged, and the urine being small in quantity, and mixed with blood.

In this chronic and renal dropsy, the watery accumulation is accounted for by the deficient excretion through the customary channels. The blood-vessels deposit that excretion in a wrong place. The urine, in the outset of the dropsy at least, is scanty. The skin is almost always dry, harsh, and unperspiring. The anasarca usually increases or decreases, as the quantity of urine diminishes or augments. Remarkable alterations take place also in the qualities and composition of the urine itself: it has a very low specific gravity, contains albumen, and is deficient in urea. The blood degenerates too; and other organs of the body, and especially the heart, are apt to fall into disease. The suppression of perspiration, and the appearance in the urine of blood or serum, unchanged by the secerning power of the kidney, form striking links of connexion between acute and renal dropsy.

In the sketch that I have been endeavouring to give you of the pathology of dropsy, I have taken extreme cases to elucidate the two varieties of that disease which have been respectively denominated active and passive. Let me once more present to you, in a summary view, the points of resemblance, and the points of distinction between them.

They resemble each other in the result; namely, in the collection of serous liquid in the circumscribed cavities and vacuities of the body. They differ in the rate at which the collection augments.

In the well-marked acute dropsies the liquid is rapidly effused, in quantity much beyond the natural amount of exhalation. In the well-marked passive dropsies the exhalation goes on as usual, but the fluid exhaled is not taken back again into the circulating vessels with sufficient facility. In the one case the circulation is disturbed and tumultuous; in the other, it remains tranquil. It is probable that in the more acute forms, the serum transudes through the coats of the arteries, or of the capillary vessels next adjacent to the arteries. In the completely chronic and cardiac forms, there is a defect of absorption by the veins. Active dropsies are sometimes spoken of as belonging to the left side of the heart; passive dropsies to the right.

But there are intermediate degrees, in which the full veins are not only unable to admit any addition of aqueous liquid, but also to retain that which they already hold; and serosity gradually exudes through their parietes.

What connects all these forms of dropsy is a preternatural fulness in some part, or the whole, of the hydraulic machine. And this seems to be the grand key to the entire pathology, as well as to the remedial management of the disease.

I scarcely need point out to you the fact, that the water of dropsy is liable to change its place, in obedience to the force of gravity. In general anasarca, when the serous accumulation slowly augments, it first becomes visible about the feet and ankles. There are two causes for this; the one occasional in its operation, the other general. The veins of the lower extremities are apt, when the patient is erect, to be more turgid than other veins; for unless the action of their valves be quite perfect, those vessels sustain the weight of a large superincumbent column of blood, which concurs with other causes to retard the upward current, and to keep the depending capillaries unduly full. Under such circumstances the effusion, or the arrest of absorption, may *take place* around the insteps earlier than in any other part. But in general it is not so. In most cases, the truer and simpler reason of the earlier manifestation of dropsical swelling about the ankles, is merely that the serous liquid which fails to be removed from the cellular tissue in all parts of the body, gravitates towards the *lowest* part; and being thus collected into a comparatively small space, is rendered more perceptible. During the night, when the horizontal posture is maintained for several hours, the œdema of the ankles disappears, but the neck and face, perhaps, become bloated and puffy. And it is obvious why, in these cases, the feet, towards evening, swell more than the hands. The hands receive the serous fluid from the cellular tissue of the arms alone; the feet, that which sinks down, not only from the legs and thighs, but from the head and trunk also. The limbs may be looked upon as bags, which fill up in proportion to the quantity of liquid detained. And the lungs are similarly bags: and in these cases we commonly may hear the crepitation of pulmonary œdema in their lowermost portions.

I mentioned an instance in which one-half only of the body was anasarcous, and that the upper half. The descent of the dropsical fluid was prevented by the dress of the patient; the waistband of his trowsers having compressed the cellular tissue through which alone the gravitating liquid could seek a passage. So, sometimes, it is stopped at a lower point of its descent by tight garters, and the thighs swell earlier than the insteps. It is not at all uncommon to see persons who, in the daytime at least, and in the erect posture, are anasarcous in the lower half only of the body. We do not so often meet with anasarca of one moiety of the body, the division being made by an imaginary plane drawn through its axis. Yet this does occasionally happen. This curious phenomenon is usually the result of a mere accident, the anasarcous patient being unable to leave his bed, or to lie at all except on one side; and then the accumulating liquid gravitates to that side. I have, however, seen one case to which this explanation would not apply. I believe that some local obstruction to a large vein in the neighbourhood of the shoulder caused œdema there, and the fluid sunk down and filled the cellular tissue of that side alone. As the man recovered, I had no means of verifying the truth of this conjecture.

Cæteris paribus those parts of the body become the most loaded with serous fluid, and shew the anasarca the plainest, of which the cellular tissue is plentiful and loose; as the eyelids, and the scrotum. But in extreme cases the liquid pervades the cellular tissue, where it is much more dense and compact: as where, for example, it is subjacent to mucous membranes. In the examination of a dropsical corpse, the mucous coat of the intestines may sometimes be seen to be elevated by the water collected beneath it. It then looks like jelly, and the *valvulæ conniventes*, which are flat and thin in their ordinary state, become round and convex. Dropsy of the submucous tissue of the air-passages is frequently a cause of death.

Many persons seem disposed to ascribe these anasarcous swellings, especially when they make their appearance suddenly, to inflammation; and much is said about the frequency of *inflammatory dropsy*. But the facts we have just been considering sufficiently refute this theory. If the serous liquid be the product of inflammation, what is the part inflamed? It cannot be, as some appear to think, the distended cellular tissue itself; for if so, the inflammation must shift its quarters under the influence of gravity. The term inflammatory dropsy may not perhaps be indefensible when applied to that class of dropsical affections that have been spoken of under the head of active dropsy. I am far from denying the frequent agency of inflammation in producing changes which, in their turn, lead to dropsy, but we shall do well not to confound those collections of serum mixed with blood or with coagulable lymph, which are distinctly events or products of inflammation, with other collections of serum which resemble the former in that respect only, but differ entirely from them in every other particular. To the class denominated active, which occur suddenly, from defect of some one or more of the usual channels of aqueous excretion, and which are usually attended with much disturbance of the whole system, the epithet *febrile* would not be inappropriate. There may be some few cases in which it is impossible to determine whether the effusion be inflammatory in its origin or not. If the serum be turbid, if we can discover in it the smallest admixture of pus, or of flakes of lymph, or if the disease has been marked by the ordinary signs of internal inflammation, we need not hesitate in our opinion. One of the latest systematic writers on dropsy in this country holds that all dropsies are more or less inflammatory. We can see one reason for this mistake (for a mistake it surely is) in the relief and amendment which often ensue upon the employment of bloodletting in dropsy. And this brings me to a very few few final remarks concerning the principles upon which dropsies are to be treated.

Treatment of Dropsies.—Of course the first object is to get rid of the preternatural accumulation of watery fluid: and the second object is to prevent its collecting again; in other words, to remedy the diseased conditions which gave rise to the dropsy. Indeed, if we can accomplish this second object without delay, the dropsy will generally disappear of its own accord. In what has been called active or febrile anasarca, general bloodletting is advantageous in several ways. It helps to relieve the congestion, akin to inflammation, upon which the effusion depends: it tends to abate the undue action of the heart: and by emptying the blood-vessels, it facilitates the reabsorption of the effused liquid, and its ultimate ejection from the system.

But although bloodletting is the most direct and certain way of unburdening the loaded veins, and therefore, in many instances, the most effectual remedy for the dropsy, it is by no means adapted to all, nor even to many forms of the malady. It will always indeed remove a portion of the aqueous ingredient of the blood, but it expends at the same time its fibrin and its red particles. It impoverishes the circulating fluid, and so enfeebles the patient more than the indirect measures, to be mentioned presently, for evacuating the collected liquid. Perhaps, by rendering the blood more watery, venæsection may indirectly favour the transudation of its serum outwards whenever the venous current happens to be retarded. It certainly weakens the central organ of the circulation; and to muscular debility of the heart we have already seen that certain forms of general dropsy may owe their origin: and thus it is that ill-timed or excessive bleeding may be the cause of dropsy. In these forms of anasarca, instead of robbing the veins of their blood, we seek to repair the quality and richness of that fluid, and so to restore the deficient tone and vigour of all the muscles, and of the heart among the rest.

In many cases then it is inexpedient to let blood; and we endeavour to empty the vessels indirectly, and in such a manner as to withdraw from them the more watery parts only of their contents. In other words, it becomes our object to augment the discharge of watery fluid from one or more of the secreting surfaces of the body: but it must not be the inner surface of a shut sac.

I noticed before the close analogy that obtains between dropsies and fluxes. Dropsy is a flux into a closed cavity. Fluxes would be dropsies if the fluid poured forth did not escape. And you are to observe that we

Besides, it is our business to cure when we can; but whether we can cure or not, to relieve and palliate human suffering; and this, under Providence, we are able to do, in many or most cases of dropsy, to a very considerable extent.

Wherever there is a shut sac, or wherever there is loose and permeable cellular tissue, there we may have dropsy.

Thus there may be dropsy of the ventricles of the brain, or of the meshes of the pia mater, leading to death by *coma*: of the pleuræ, of the cellular texture of the lungs, or of the submucous cellular tissue of the glottis, any of which may cause death by *apnœa*; of the pericardium, producing death by *syncope*. I mention these instances in particular, to shew that almost every mode of dying may result from dropsical effusion; and to win your attention to a disorder so full of peril.

When the cerebral ventricles are distended with water, we express the diseased condition by the term *hydrocephalus*. When serous liquid collects in the pleuræ, or in the pericardium, we say that the patient has *hydrothorax*, or *hydropericardium*. If the cavity of the peritoneum be the seat of the effusion, we call the complaint *ascites*. When the cellular tissue of a part becomes infiltered with serous fluid, the part is said to be *œdematous*; and *anasarca* is the name given to the more or less general accumulation of serum into the cellular tissue throughout the body, and especially to visible subcutaneous œdema of considerable extent. Finally, the term *general dropsy* signifies the combination of anasarca with dropsy of one or more of the large serous cavities.

Other local dropsies indeed there are, but, as they belong entirely to surgery, I need not enumerate them.

General pathology of dropsies.—Now what reasonable account can be given of these remarkable conditions? How is it that the hollows and interstices of the living body, or of parts of the body, became thus water-logged?

To solve this question, we must carry in our minds some physiological recollections.

The closed cavities or cells within which the fluid of dropsy is confined, are kept moist, during life and health, by a continual serous secretion from their surfaces; and they are kept *merely* moist, for the fluid thus constantly secreted is as constantly reabsorbed into the circulation.

When these cells or cavities, without having undergone inflammation, become filled and distended with the serous fluid which they habitually secrete, one of three things must have happened. Either the quantity of fluid exhaled has been augmented, the absorption remaining the same; or, the absorption has been diminished, the exhalation continuing the same; or else the exhalation has been increased while the absorption was either lessened or not proportionally increased at the same time.

The last is a mixed case; and we need only consider the two first.

Now the balance between exhalation and absorption is often deranged, and dropsies do actually arise, in each and all of these ways.

It will best suit my purpose to speak first of those dropsies which are occasioned by defective absorption, and which are usually called chronic or passive dropsies.

The direct agency of the blood-vessels in the production, as well as in the removal, of dropsy, although indicated by many common and obvious facts, has not been generally recognized till a comparatively recent period. Perhaps I should rather say that more importance used to be assigned, in these respects, to the agency of the lymphatic absorbents, than they are really entitled to. You will find that pathologists, even in modern times, speak of a want of tone, of deficient energy, in the absorbents, as a cause of dropsical accumulations; the superfluous fluid of the part is not adequately taken up (they say) by the enfeebled absorbents, meaning the absorbents strictly and anatomically so called. And this view of the matter, connecting dropsy always with debility as its cause, has led to a corresponding plan of treatment: the object aimed at being the stimulation of the absorbents to more energetic action.

But to the doctrine that dropsy is a consequence of the deficient action of the absorbents, this obvious difficulty presents itself,—that absorption really goes on, and goes on very actively, in dropsical patients: their adipous matter disappears, they become wretchedly thin. There is no complaint in which wasting and emaciation go to a greater extent than in dropsy. You will find also that persons labouring under anasarca are readily enough affected by mercury; which must of course be absorbed before it can produce any of its specific effects.

It must be confessed that our knowledge respecting the mechanism of absorption is neither complete nor certain; but there is good reason for supposing that the process is shared among the lacteals, the lymphatics, and the *veins*; and it is probably distributed between these sets of vessels somewhat in this manner;—that the lacteals absorb the chyle from the surface of the alimentary canal, and convey into the blood the materials of its renovation; that the office of the lymphatics is to take up and carry into the blood those old and effete portions of the solid constituents of the body, which require to be removed to make way for a fresh deposit; while the veins imbibe the serous fluid exhaled from the surfaces of serous membranes, and into the meshes of the cellular tissue, as well as poisons and other substances that are soluble and dissolved in that fluid.

If this be so, the difficulty just now mentioned vanishes. Of the two sets of absorbing vessels, the lymphatics and the veins, one set may continue to perform its functions, while the other fails to do so. This theory is quite consistent with the actual phenomena of dropsical disease; and whether it be altogether true or not, a part of it is certainly true; that, namely, which assigns to the veins a *large* share in the whole process of absorption. The experiments of Magendie and of others are quite conclusive upon that point.

It has also been fully established, that fluids may and do pass into or out of the veins, in the living body, not by any vital process, but by mere physical imbibition and transudation, through the coats of those vessels; that when the veins are distended to a certain degree with watery fluid, the entrance of more of the same fluid, through their sides, is impeded or prevented; that, when the distension is still greater, the aqueous part of the blood may even pass in the other direction out of the vessel; and that, on the other hand, when the veins are comparatively empty, the surrounding serous fluid passes readily into them, or, in common language, is absorbed. The venous absorption is explicable therefore upon the principles of *endosmose* and *exosmose*, as laid down by Dutrochet; or I would rather say, according to the more general and more simple laws of *heterogeneous attraction*, as explained by Professor Daniell.

Imbibition, being a form of that attraction, belongs in various degrees to all the tissues of the body. Its rapidity—and even its direction in respect to the elastic coats of a vessel surrounded by fluid, and also carrying fluid of a certain consistence—will vary with the varying distension of the vessel. When the vessel is moderately full, the exterior fluid passes uninterruptedly inwards, and is conveyed away by the internal current. When, on the other hand, the vessel is kept much distended by its contents, the contained fluid, or its thinner part, passes continually outwards; and there is an intermediate degree of distension, at which the pressure is just sufficient to prevent the transit of fluid in either direction. Magendie found, accordingly, in a well-conducted and conclusive series of experiments, that by regulating the conditions of comparative emptiness or fulness of the circulating system, he could accelerate, retard, or suspend altogether, the operation of a poison dissolved in the humours of the body. In other words, he could thus accelerate, retard, or prevent, the process of absorption or imbibition through the blood-vessels.

Bearing these physiological truths in remembrance, we shall have no difficulty in shewing that the chronic forms of dropsy are attributable partly, and chiefly, and in many instances entirely, to undue plenitude of the veins; and that this venous repletion is produced, almost always, by some impediment to the free return of the blood towards the heart.

Passive dropsy from venous obstruction.—When the cellular tissue of a limited part of the body becomes filled and distended by serous liquid, we call the swelling *œdema:* but this is exactly the same, in its nature, as anasarca. Now œdema is often the consequence of some mechanical obstruction to the venous circulation. We can produce it whenever we will. Our countryman Dr. Lower, 170 years ago, tied the jugular vein of a living dog. When a few hours had elapsed, he observed that all the parts beyond the ligature, reckoning from the heart, were much swollen: and upon dissecting the animal after death he found that the cellular tissue of the head and face was filled, not with red blood, as he had expected it might be, but with clear and limpid serum. On another occasion he placed a ligature upon the vena cava, just above the diaphragm: death soon ensued, and a large quantity of water was discovered in the cavity of the peritoneum.

Precisely similar phænomena succeed the compression or obliteration of a large vein in various parts of the body. In operating for popliteal aneurism, Mr. Travers was obliged to tie the femoral vein: the cellular tissue of the limb was speedily infiltered with serous fluid. Long-abiding œdema of one foot and ankle has been cured at once by the reduction of a crural hernia, which had been pressing for the same length of time upon the femoral vessels. You have heard, most probably, of the disease called *phlegmasia dolens;* a disease that is very common in women soon after childbirth, although it is not peculiar to them, nor to the female sex. The foot, leg, and thigh, become enormously œdematous. The essence of this disorder is inflammation of the femoral vein, which blocks up that vessel near the groin, and retards or precludes the return of the venous blood from the limb. One arm often swells in the same way, and from a similar cause, in women who are afflicted with cancer of the breast. In pregnancy, the gravid uterus sometimes presses upon the iliac veins, and obstructs the current of blood within them: the consequence is, anasarca of the lower extremities, which disappears as soon as the pressure is removed by the delivery of the woman. The flow of blood through the vena portæ is frequently hindered, by disease in the liver, or by other causes; and serous liquid accumulates in the peritoneum, constituting ascites. A French physician, M. Tonnellé, narrates several cases in which serosity was found in the cavity of the arachnoid, in conjunction with obliteration of the venous sinuses of the dura mater. In all these instances we have retardation of the venous current, undue plenitude of the veins, and dropsy of the part from which they proceed. The natural exhalation goes on, and the exhaled fluid collects and stagnates, because the channel through which it ought to be drained away is choaked up. The larger the vein, and the nearer we approach the heart, the more extensive is the dropsical accumulation: and if we could plant an obstacle at the very termination of the venous stream, we should dam up the blood in the whole system of veins, and produce a general dropsy.

Such an obstacle is frequently placed there by disease. The returning blood is checked at its entrance into the heart; at the confluence of all the veins of the body, where they unite to empty themselves into the right chambers of that organ: and then anasarca of the universal cellular tissue comes on, and water collects in all or most of the great serous cavities.

It is no part of my present purpose to inquire how such disease of the heart as is productive of dropsy, arises. Commonly we find the right auricle and ventricle enlarged in capacity, the opening between them unnaturally wide, and the tricuspid valve unequal to its office of closing that aperture. Such a morbid state of the right heart may be occasioned by any cause which impedes the flow of blood *out of* its cavities. The diseased condition of those cavities may be primary; but it is oftener perhaps consecutive to other disease. It may be produced by disease of the lungs, preventing the right ventricle from freely delivering its contents into the pulmonary blood-vessels. Or the retarding cause may be still more distant, in the left side of the heart, keeping the pulmonary blood-vessels unduly full, and thereby hindering indirectly the escape of the blood from the right ventricle. The dropsy may ultimately depend, therefore, upon some bar to the circulation placed even at the mouth of the aorta. Obstacles situated any where in the circuit formed by the right heart, the lungs, and the left heart, have the effect of producing secondary changes in the parts behind them. But disease, thus propagated in a direction retrograde to the course of the blood, is propagated gradually, and sometimes very slowly. These are points of much interest, which we shall investigate together by and by. I allude to them now, that you may not be perplexed by a knowledge of the fact, that diseases of the heart often exist for a long while without inducing dropsy. It is with disease of the right side of the heart, whether primary or secondary, that passive dropsy is especially associated.

As if to furnish the *experimentum crucis* in respect to this doctrine, disease does sometimes, with a curious precision, dam up one only of the two great venous trunks, at the junction of which the left auricle is placed: and then the dropsy is as curiously limited to that half of the body in which the tributary veins of the obstructed trunk originate. The first example of this which I ever saw was a most remarkable one. The patient was dropsical in his upper half only. His arms were so hugely anasarcous that he could not bring his elbows near his sides; his neck and face were hideously bloated and exaggerated, and his eyes prominent and staring; while his lower limbs were of their natural size, and appeared preposterously small and out of proportion. The poor man looked as if the upper part of his body had been stuffed, for acting some ridiculous part upon the stage. The cause of this strange and distressful state was found to be the obliteration of the vena cava superior, close to the auricle. Its sides had been pressed together by a large aneurism of the aorta; and a portion of the vein was fairly sealed up. I have seen two similar cases since.

Objections have, however, been taken to the accuracy of the conclusions drawn from such cases as I have related; and it is fit that you should be aware of them. Thus it is stated that veins have been found obliterated, and yet there was no dropsy. Now to this objection it may be answered, in the first place, that it is not every vein, the obliteration of which would cause manifest œdema. It must be the principal venous trunk of the part concerned. When some of the secondary and smaller veins alone become impervious, the blood may reach, and return by, the primary branches with sufficient readiness to relieve the turgid capillaries, and prevent any serous accumulation.

But (it may be said) the principal vein itself has been found converted into a solid cord, and still there was no dropsy. Granted: but it does not follow that there never *had been* dropsy. You know that when a large artery is tied, the circulation is carried on in the corresponding limb, by means of collateral arterial branches: imperfectly indeed at first; but at length, as the supplemental channels become more numerous and free, the supply of blood to the limb is as copious as ever. It is precisely the same, *mutatis mutandis*, with the veins; only that the anastomosing venous tubes are not (perhaps) so readily developed as the arterial. Now I am not aware of any instance in which it has been shewn that the principal vein was obliterated, and yet there neither was, nor had been, any œdema of the limb. The recorded cases have been met with in dissecting rooms, and the previous history of the subject has been unknown or unregistered. Mr. Kiernan has told me that he once examined the body of a woman who had excited much curiosity among the medical men by whom she had been seen during life, on account of a remarkable and enormous dilatation of the superficial veins of the abdomen. She was not dropsical, and the cause of the huge varix was sought for with great interest after her death. The inferior cava was obliterated. Here the compensating result was obvious to the sight; the new channels had answered their purpose, and performed the functions of the original channel. The history of this case was incomplete: it was not ascertained whether the woman had always been free from dropsy.

I hold this objection therefore to be invalid, until some authentic instance shall be brought forward of the obliteration of a large venous trunk, without a corresponding accumulation of serous fluid, either at the time when the observation is made, or at some previous time in the life of that individual. It is, besides, possible enough, that the obstruction of a large vein may be effected gradually, by the slow encroachment, for instance, of a growing tumour; and the collateral circulation may begin to be enlarged with the first impediment in the vein, and may keep pace with and counterbalance that increasing impediment, till the closure of the vessel is complete; so that, from first to last, there may be no noticeable dropsy.

Again, it is affirmed, and truly affirmed, that anasarca often occurs, without any obliteration of veins, and independent of any discoverable organic disease in the heart, or anywhere else. We see this every day, in weak chlorotic girls, with bloodless cheeks, and pale lips. Some of you saw a case of this kind which was lately under my care in the hospital; besides the anasarca, the systolic sound of the heart was accompanied by a loud, unmistakeable bellows sound. This girl got quite well, and left the hospital without bellows sound, or any other trace of disease. There could not then have been an organic change: in fact there was not. Yet was there, virtually, a retardation of the venous circulation: not by any mechanical obstacle opposed to its course, but in consequence of the debility of that hollow muscle, the office of which is to propel onwards, with a certain degree of force, the blood that reaches it. Girls of this description have weak and flabby voluntary muscles; and it is reasonable to presume that the involuntary muscle, the heart, partakes of the general debility of the muscular system, and becomes incapable of sending the blood forwards with the requisite energy. Nay, I believe that a heart thus feeble may yield a little and dilate under the resisting pressure of the blood that enters its chambers; and that so an occasional but temporary bellows sound may arise, from the altered relation between the cavities of the heart and their outlets. Certainly this view of the matter is strengthened by the *juvantia* and *lædentia*. If you are tempted, by the pain complained of by your patient, or by the violence with which her heart is throbbing, to take away blood, you find that she is ultimately made worse by the depletion; on the other hand, if you give her steel, feed her well, keep her bowels free, and place her every morning under a cold shower bath, you find that she recovers her lost strength, that colour returns to her lips and cheeks, that her palpitations cease, and her dropsy vanishes. In proportion as the muscular system in general receives fresh tone and vigour, does that particular muscle the heart also regain the degree of power necessary for the effectual discharge of its proper function, which is very much that of a forcing pump. Such is the way in which I should explain both the cause of the dropsy, and the cause of its cessation. In such cases our patients do not simply *recover;* they are *cured.* I should apply a similar explanation to some other forms of dropsy. Andral describes a certain *cachectic* disposition of the body to be a cause of dropsy; persons may be bled into a dropsy, and starved or weakened into a dropsy. These are genuine instances of dropsy from debility, such as the ancients conceived all dropsies to proceed from. It may be that the thin and watery quality of the blood induced by frequent bleedings, by insufficient nourishment, by certain poisons, or by other causes, may facilitate its passage through the coats of the veins. But admitting this as a concurrent cause, I am disposed to the belief that all passive dropsies occurring under the circumstances just adverted to, and without any apparent organic disease or change, are mainly to be ascribed to debility of the heart: and viewed in this way, they are all brought under the same general principle; viz., the retardation of the blood in the veins.

General Dropsy, cardiac or renal.— A large class, then, of passive dropsies, depending upon mechanical congestion, and defective absorption by the veins, are traceable, in their origin, to the heart; and we call them, accordingly, *cardiac* dropsies. But another class, perhaps as numerous, are connected in a remarkable manner with certain diseased conditions of the kidneys; and these, for the sake of distinction, we style *renal* dropsies. I shall say a few words respecting them, after I have briefly considered the other source of dropsical swellings, adverted to in the commencement of this lecture; namely, excessive *exhalation* of serous liquid. Dropsy so caused comes on suddenly and tumultuously, and is spoken of as being *acute* or *active*. It borders closely upon inflammation, and sometimes can scarcely be discriminated from inflammation with serous effusion. The condition of the capillary circulation is supposed to be intermediate between that in which the ordinary amount of secretion is maintained, and that in which inflammatory effusion takes place. The excessive increase of secretion is analogous to what we observe in other parts and predicaments of the body; to the abundant perspirations, for example, that are occasioned by violent exercise: to the plentiful flow of tears caused by any irritation of the eye, or by the passion of grief; to the augmented watery discharges from the mucous membrane of the bowels, produced by purgative medicines; all of which may be independent of inflammation, but all of which are attended with congestion that might readily be pushed into inflammation. In point of fact, if the secretions to which I have now referred were poured into closed cavities, instead of proceeding from surfaces that are situated on the exterior of the body, or communicate readily with the exterior, they would *constitute* dropsies.

Active dropsy.—The phænomena of active dropsy are of this kind: a labourer is engaged in some employment, which, while it requires considerable bodily exertion, and causes copious perspiration, necessarily exposes him also to the influence of external cold and moisture: he has been digging (perhaps) in a wet ditch, in winter time, and he pauses to take his meal; or he has been unloading a waggon, and rides home, some miles, in a heavy rain that wets him to the skin; or he has been mowing, in the heat of summer, and lies down to sleep upon the damp grass. All these suppositions are derived from actual occurrences. The perspiration is suddenly checked; and in the course of a few hours he becomes universally anasarcous. Again, a patient recovering from scarlet fever ventures out into a cold atmosphere, while the process of desquamation is yet going on; and he is attacked with dropsy of the cellular tissue, and, it may be, of some of the larger cavities also. The urine at the same time is observed to be scanty, troubled, mixed with blood.

To comprehend this rapid change from a state of health to a state of dangerous disease, we must again have recourse to the findings of physiology.

Besides the constant exhalation that takes place from the inner faces of the shut serous cavities, a large amount of watery fluid is continually thrown out of the system, by all those surfaces that communicate with the air; by the skin, the lungs, the bowels, the kidneys. Now it is well ascertained that when the excretion of aqueous fluid from one such surface is checked, the exhalation from some other surface becomes more copious. It is probable that the aggregate quantity of water thus expelled from the system in a given time, cannot vary much, in either direction, without deranging the whole economy. But we are sure that the amount furnished by any excreting surface may vary and oscillate within certain limits consistent with health, provided that the defect or excess be compensated by an increase or diminution of the ordinary expenditure of watery liquid through some other channel. Sound health admits and requires this shifting and counterpoise of work between the organs destined to remove aqueous fluid from the body. This supplemental or compensating relation is more conspicuous in regard to some parts than others. The reciprocal but inverse accommodation of function that subsists between the skin and the kidneys affords the strongest and the most familiar example. In the warm weather of summer, when the perspiration is abundant, the urine is proportionally concentrated and scanty. On the other hand, during winter, when the cutaneous transpiration is checked by the operation of external cold, the flow of dilute water from the kidneys is strikingly augmented. All this is well known to be compatible with the maintenance of the most perfect health. But supposing the exhalation from one of these surfaces to be much diminished, or to cease, without a corresponding increase of function in the related organ, or in any excreting organ communicating with the exterior, then dropsy, in some form or degree, is very apt to arise. The aqueous liquid thus detained in the blood-vessels, seeks and at length finds some unnatural and inward vent, and is poured forth into the cellular tissue, or into the cavities bounded by the serous membranes.

Dropsy of one part sometimes supervenes suddenly upon the rapid disappearance of a watery collection from another part. It is no uncommon thing to see the swollen unwieldy legs and thighs of an anasarcous patient quickly unload themselves, and resume their natural bulk and symmetry. His friends congratulate him, and each other, that his disease is leaving him; but as his legs are emptying, he becomes drowsy, forgetful, comatose, apoplectic; and after his death we find the ventricles of the brain distended with serous fluid.

Or the dropsical accumulation may be transferred from its place through a safer channel. The best instance of this that occurs to my recollection I heard related by Dr. Farre. A gouty individual had hydrocele; dropsy of the tunica vaginalis. After the disease had lasted for some time he got very drunk one evening, with rack punch, which greatly disordered his alimentary canal, and brought on a kind of cholera. He had profuse vomiting and purging, which quite exhausted him: and at length he fell asleep. When he awoke in the morning he found that his hydrocele, which had been a large one, was gone: and it never returned. Such an accidental cure is most instructive.

If water be injected, in some quantity, into the blood-vessels of a living animal, the animal soon perishes; dying generally by coma, or by suffocation: and when the carcass is examined, the lungs are found to be charged with serous liquid, or water is discovered in the cellular tissue of some other part, or in the shut serous membranes. If, however, the animal be first bled, and then a quantity of water be injected equal to the quantity of blood abstracted, the injection is followed by no serious consequences.

Facts like these throw, as it seems to me, a strong light upon a confessedly obscure part of pathology. It appears that under various circumstances the blood-vessels may receive a considerable and unwonted accession of watery fluid; and that they are very prone to get rid of the redundance. When they empty themselves through some free surface, their preternatural distension is relieved by a flux: if, on the other hand, the surface be that of a shut sac, in discharging their superfluity they cause a dropsy. Why sometimes this organ, and sometimes that, is selected as the channel by which the superabundant water shall be thrown out of the vessels, we can seldom tell. We often find it difficult to determine which of the two facts in question is to be considered the antecedent, and which the consequent. For not only is it true that when the blood-vessels become overloaded with serous fluid, they readily deposit a part of it; but also that when they are in the opposite condition of comparative emptiness, when they contain less blood than is natural, they are equally ready to replenish themselves by absorbing fluids from any source to which they can find access. In the case of the man who was cured of his hydrocele upon the occurrence of profuse watery discharges from the stomach and bowels, it seems clear that the expenditure of serous liquid from one part led to its absorption into the blood from another. When anasarca suddenly leaves the extremities, and fatal coma follows, it appears probable that the absorption is the first of the changes, and the effusion the second: and had this effusion been determined to the mucous membrane of the intestines, to the skin, or to the kidneys, it would have brought relief and safety to the patient, instead of causing his death.

We have obtained, then, a glimpse of one or two most important principles in respect to the pathology of dropsy. The blood-vessels, when preternaturally full of aqueous fluid, have a strong tendency to empty themselves; when preternaturally empty, they readily drink up watery fluid wherever they come in contact with it. From the discharge of their superfluity of water arises a dropsy, or a flux. The cause, and the cure, of many dropsies, lie in these propositions.

The application of these principles to the supposed case of active dropsy must be obvious. No doubt, in some such cases, actual inflammation takes place; but in many of them there is merely the dropsical effusion, without any other trace or evidence of inflammatory action. The two facts which it chiefly concerns us to remark are these—first, that the aqueous portion of the blood, which in health is habitually carried off to a very considerable amount by the skin, is suddenly diverted from that tissue; the perspiration, sensible and insensible, is suppressed: and secondly, that the cellular tissue, or the large serous bags, or both, become filled with serosity.

It is not by any necessity, however, that the vicarious excretion is turned upon these serous surfaces. In truth, the intercepted perspiration more often escapes, or labours to escape, from some free surface; and then we have, not a dropsy, but a flux. Diarrhœa, for example, is more common, under the supposed circumstances, than anasarca or ascites: apparently because there is a closer analogy of structure, and a more direct consent or agreement in function, and a stronger reciprocal influence between the skin and the mucous membrane of the alimentary canal, than between the skin and the serous tissues.

Brief allusion has been made to a large class of chronic dropsies, connected with and dependant upon a peculiar renal disease. This important species of dropsy will require a detailed examination hereafter. It is more complex, and of more obscure pathology, perhaps, than *cardiac* dropsy. It certainly has a more direct relation also to what I have just been describing as active dropsy: of which it may almost be regarded as the chronic form. Sometimes the kidney disease, of which the dropsy is an incidental and not an essential symptom, springs up silently, and without obvious cause. Sometimes it may distinctly be traced back to its origin in an attack of acute dropsy; in which complaint the kidney always and manifestly labours, its functions being violently deranged, and the urine being small in quantity, and mixed with blood.

In this chronic and renal dropsy, the watery accumulation is accounted for by the deficient excretion through the customary channels. The blood-vessels deposit that excretion in a wrong place. The urine, in the outset of the dropsy at least, is scanty. The skin is almost always dry, harsh, and unperspiring. The anasarca usually increases or decreases, as the quantity of urine diminishes or augments. Remarkable alterations take place also in the qualities and composition of the urine itself: it has a very low specific gravity, contains albumen, and is deficient in urea. The blood degenerates too; and other organs of the body, and especially the heart, are apt to fall into disease. The suppression of perspiration, and the appearance in the urine of blood or serum, unchanged by the secerning power of the kidney, form striking links of connexion between acute and renal dropsy.

In the sketch that I have been endeavouring to give you of the pathology of dropsy, I have taken extreme cases to elucidate the two varieties of that disease which have been respectively denominated active and passive. Let me once more present to you, in a summary view, the points of resemblance, and the points of distinction between them.

They resemble each other in the result; namely, in the collection of serous liquid in the circumscribed cavities and vacuities of the body. They differ in the rate at which the collection augments.

In the well-marked acute dropsies the liquid is rapidly effused, in quantity much beyond the natural amount of exhalation. In the well-marked passive dropsies the exhalation goes on as usual, but the fluid exhaled is not taken back again into the circulating vessels with sufficient facility. In the one case the circulation is disturbed and tumultuous; in the other, it remains tranquil. It is probable that in the more acute forms, the serum transudes through the coats of the arteries, or of the capillary vessels next adjacent to the arteries. In the completely chronic and cardiac forms, there is a defect of absorption by the veins. Active dropsies are sometimes spoken of as belonging to the left side of the heart; passive dropsies to the right.

But there are intermediate degrees, in which the full veins are not only unable to admit any addition of aqueous liquid, but also to retain that which they already hold; and serosity gradually exudes through their parietes.

What connects all these forms of dropsy is a preternatural fulness in some part, or the whole, of the hydraulic machine. And this seems to be the grand key to the entire pathology, as well as to the remedial management of the disease.

I scarcely need point out to you the fact, that the water of dropsy is liable to change its place, in obedience to the force of gravity. In general anasarca, when the serous accumulation slowly augments, it first becomes visible about the feet and ankles. There are two causes for this; the one occasional in its operation, the other general. The veins of the lower extremities are apt, when the patient is erect, to be more turgid than other veins; for unless the action of their valves be quite perfect, those vessels sustain the weight of a large superincumbent column of blood, which concurs with other causes to retard the upward current, and to keep the depending capillaries unduly full. Under such circumstances the effusion, or the arrest of absorption, may *take place* around the insteps earlier than in any other part. But in general it is not so. In most cases, the truer and simpler reason of the earlier manifestation of dropsical swelling about the ankles, is merely that the serous liquid which fails to be removed from the cellular tissue in all parts of the body, gravitates towards the *lowest* part; and being thus collected into a comparatively small space, is rendered more perceptible. During the night, when the horizontal posture is maintained for several hours, the œdema of the ankles disappears, but the neck and face, perhaps, become bloated and puffy. And it is obvious why, in these cases, the feet, towards evening, swell more than the hands. The hands receive the serous fluid from the cellular tissue of the arms alone; the feet, that which sinks down, not only from the legs and thighs, but from the head and trunk also. The limbs may be looked upon as bags, which fill up in proportion to the quantity of liquid detained. And the lungs are similarly bags: and in these cases we commonly may hear the crepitation of pulmonary œdema in their lowermost portions.

I mentioned an instance in which one-half only of the body was anasarcous, and that the upper half. The descent of the dropsical fluid was prevented by the dress of the patient; the waistband of his trowsers having compressed the cellular tissue through which alone the gravitating liquid could seek a passage. So, sometimes, it is stopped at a lower point of its descent by tight garters, and the thighs swell earlier than the insteps. It is not at all uncommon to see persons who, in the daytime at least, and in the erect posture, are anasarcous in the lower half only of the body. We do not so often meet with anasarca of one moiety of the body, the division being made by an imaginary plane drawn through its axis. Yet this does occasionally happen. This curious phenomenon is usually the result of a mere accident, the anasarcous patient being unable to leave his bed, or to lie at all except on one side; and then the accumulating liquid gravitates to that side. I have, however, seen one case to which this explanation would not apply. I believe that some local obstruction to a large vein in the neighbourhood of the shoulder caused œdema there, and the fluid sunk down and filled the cellular tissue of that side alone. As the man recovered, I had no means of verifying the truth of this conjecture.

Cæteris paribus those parts of the body become the most loaded with serous fluid, and shew the anasarca the plainest, of which the cellular tissue is plentiful and loose; as the eyelids, and the scrotum. But in extreme cases the liquid pervades the cellular tissue, where it is much more dense and compact: as where, for example, it is subjacent to mucous membranes. In the examination of a dropsical corpse, the mucous coat of the intestines may sometimes be seen to be elevated by the water collected beneath it. It then looks like jelly, and the *valvulæ conniventes*, which are flat and thin in their ordinary state, become round and convex. Dropsy of the submucous tissue of the air-passages is frequently a cause of death.

Many persons seem disposed to ascribe these anasarcous swellings, especially when they make their appearance suddenly, to inflammation; and much is said about the frequency of *inflammatory dropsy*. But the facts we have just been considering sufficiently refute this theory. If the serous liquid be the product of inflammation, what is the part inflamed? It cannot be, as some appear to think, the distended cellular tissue itself; for if so, the inflammation must shift its quarters under the influence of gravity. The term inflammatory dropsy may not perhaps be indefensible when applied to that class of dropsical affections that have been spoken of under the head of active dropsy. I am far from denying the frequent agency of inflammation in producing changes which, in their turn, lead to dropsy, but we shall do well not to confound those collections of serum mixed with blood or with coagulable lymph, which are distinctly events or products of inflammation, with other collections of serum which resemble the former in that respect only, but differ entirely from them in every other particular. To the class denominated active, which occur suddenly, from defect of some one or more of the usual channels of aqueous excretion, and which are usually attended with much disturbance of the whole system, the epithet *febrile* would not be inappropriate. There may be some few cases in which it is impossible to determine whether the effusion be inflammatory in its origin or not. If the serum be turbid, if we can discover in it the smallest admixture of pus, or of flakes of lymph, or if the disease has been marked by the ordinary signs of internal inflammation, we need not hesitate in our opinion. One of the latest systematic writers on dropsy in this country holds that all dropsies are more or less inflammatory. We can see one reason for this mistake (for a mistake it surely is) in the relief and amendment which often ensue upon the employment of bloodletting in dropsy. And this brings me to a very few few final remarks concerning the principles upon which dropsies are to be treated.

Treatment of Dropsies.—Of course the first object is to get rid of the preternatural accumulation of watery fluid: and the second object is to prevent its collecting again; in other words, to remedy the diseased conditions which gave rise to the dropsy. Indeed, if we can accomplish this second object without delay, the dropsy will generally disappear of its own accord. In what has been called active or febrile anasarca, general bloodletting is advantageous in several ways. It helps to relieve the congestion, akin to inflammation, upon which the effusion depends: it tends to abate the undue action of the heart: and by emptying the blood-vessels, it facilitates the reabsorption of the effused liquid, and its ultimate ejection from the system.

But although bloodletting is the most direct and certain way of unburdening the loaded veins, and therefore, in many instances, the most effectual remedy for the dropsy, it is by no means adapted to all, nor even to many forms of the malady. It will always indeed remove a portion of the aqueous ingredient of the blood, but it expends at the same time its fibrin and its red particles. It impoverishes the circulating fluid, and so enfeebles the patient more than the indirect measures, to be mentioned presently, for evacuating the collected liquid. Perhaps, by rendering the blood more watery, venæsection may indirectly favour the transudation of its serum outwards whenever the venous current happens to be retarded. It certainly weakens the central organ of the circulation; and to muscular debility of the heart we have already seen that certain forms of general dropsy may owe their origin: and thus it is that ill-timed or excessive bleeding may be the cause of dropsy. In these forms of anasarca, instead of robbing the veins of their blood, we seek to repair the quality and richness of that fluid, and so to restore the deficient tone and vigour of all the muscles, and of the heart among the rest.

In many cases then it is inexpedient to let blood; and we endeavour to empty the vessels indirectly, and in such a manner as to withdraw from them the more watery parts only of their contents. In other words, it becomes our object to augment the discharge of watery fluid from one or more of the secreting surfaces of the body: but it must not be the inner surface of a shut sac.

I noticed before the close analogy that obtains between dropsies and fluxes. Dropsy is a flux into a closed cavity. Fluxes would be dropsies if the fluid poured forth did not escape. And you are to observe that we frequently try to cure a dropsy by producing a flux.

By what surface or channel this artificial drain shall be attempted, is often a matter of great nicety and importance. In some cases we strive to promote the discharge of the superabundant water by the way of the kidneys: in others by the mucous lining of the alimentary canal: in others by the external skin. The circumstances by which our choice must be determined will come under review hereafter.

Passive dropsies are much more difficult of cure than active, and will often baffle our best-directed efforts. You are not, however, to regard those passive dropsies that depend upon the obliteration of a large vein as necessarily incurable; because, if a collateral venous circulation be accomplished, the dropsy will permanently disappear. But we must give nature the credit of the cure in such cases. Time is the best remedy; and all that we can sometimes do is to alleviate in the meanwhile the most distressing or threatening of the symptoms.

I mentioned, in the outset of the lecture, that the presence of the dropsical fluid may constitute nearly all the suffering of the patient, as well as much of his danger. Now, when we cannot get rid of the water by bleeding, or by internal remedies which excite serous discharges, we may often afford great present comfort to our patient, and prolong his days, by letting the water out by a slight mechanical operation. *Paracentesis* is the scientific, and *tapping* the vulgar name for this proceeding. It has been performed successfully, by means of a small trocar, to evacuate the water from the brain in chronic hydrocephalus: it is often resorted to for the purpose of emptying the peritoneal cavity, and the tunica vaginalis testis; and it is not seldom practised to let out the fluid of anasarca; for *acupuncture* of the legs and thighs and scrotum is only another form of tapping.

In the local variety of dropsy that is called *hydrocele*, the reaccumulation of the liquid is sometimes prevented by exciting just so much inflammation of the membrane as may cause its opposite surfaces to cohere; whereby the cavity itself being abolished, any return of the disease is rendered impossible.

This is an expedient which we do not dare to employ in other species of dropsy; in ascites, for example: 1st, because the inflammation itself would place the patient's existence in imminent peril; and secondly, because, if it could be safely conducted, the adhesion and obliteration would seriously embarrass and impede the functions of important organs.

The circumstances which require and justify this mechanical remedy: the rules and precautions to be observed in its performance; and the measures to be adopted for preventing the recurrence of the accumulation, by the removal of its efficient cause, will all be considered in detail when we come to treat of the special forms of dropsy.

NOTE ON THE PRESENT EPIDEMIC OF SMALL-POX,
AND ON THE
NECESSITY OF ARRESTING ITS RAVAGES.

By William Farr.*

The last epidemic of small-pox began early in 1837, and attained its greatest height in 1838. The number of deaths registered from small-pox in the two and a half years, ending Dec. 31st, 1839, were 30,819 in England, and 5186 (or one-sixth of the number) in the metropolis. Its termination was thus described:—"The epidemic [which had begun in the towns on the eastern side of the island] subsided on the western shore; and "in the summer of 1839, only 1533 died of "small-pox in the kingdom; 65 cases of "small-pox were registered in London. In "the autumn of 1839, signs of a second epidemic appeared at Liverpool, Bath, and "other towns; the deaths in the kingdom "rose to 1730."—*App. to Second Report of the Registrar-General*, p. 17.

The disease in the metropolis was then at the lowest ebb; the deaths from small-pox were only 60 in the three months, October, November, December, 1839. But the tables of mortality have displayed a rapid weekly increase down to the present time; and it may be interesting to compare the rate of increase with that which obtained in the previous epidemic. The comparison will render it probable that if unchecked, the mortality has not yet attained its height.

The deaths registered in the metropolis were as follows, in 1837, 1838, 1839:—

Quarters.			Deaths from Small-pox.
1	1837.	July, Aug., Sept.	257
2		Oct., Nov., Dec.	506
3	1838.	Jan., Feb., March	753
4		April, May, June	1145
5		July, Aug., Sept.	1061
6		Oct., Nov., Dec.	868
7	1839.	Jan., Feb., March	364
8		April, May, June	117
9		July, Aug., Sept.	65
10		Oct., Nov., Dec.	60
		Total.	5116

The quarterly deaths rose from 257 to 1145. The increase was 445 per cent., or more than fourfold, in the period of *three* quarters, extending from the middle of August, 1837, to the middle of May, 1838. The increase was in a geometrical progression; and the *quarterly* rate of increase was, therefore, the cube root of 4·45=1·65; or 65 per cent.

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* From the Lancet, Nov. 28.

The deaths by small-pox in the metropolis were 60 in the last quarter of 1839; but 104 deaths were registered in the first quarter of 1840. Another epidemic had commenced, and there was an opportunity of observing the disease at a much earlier stage than in the previous epidemic. The rate 1·65 regulated the rise of the former epidemic, after the deaths were 259 quarterly: would the same rate apply to the epidemic of 1840, and regulate its course? Could the future number of deaths have been predicted, with the degree of probability, in April, 1840? With only one series of accurate observations, it would have been rash to hazard any prediction of the kind. But if the prediction had been hazarded, it would have been found accurate. The rate 1·65 has hitherto regulate the course of the present epidemic, and has thus confirmed the view taken of this class of diseases, and of the laws of their progress.

The following table exhibits the quarterly deaths registered, and the numbers deduced from the first (60) by successively multiplying by 1·65 :—

	Registered.	Series of Numbers produced by 1·65, the Rate of Increase in the Epidemic of 1837-8.
13 weeks (Oct. 1 to Dec. 31, 1839) - - -	60	60
13 weeks (Jan. 5 to April 4, 1840) - - -	104	99
13 weeks (April 5 to July 4) - - - - - - -	170	163
13 weeks (July 5 to Oct. 3) - - - - - - -	258	297
Total - - - - - - - - - - - -	587	597

The deaths in the quarter which has commenced would be 440; in the quaarter following, 724, at the same rate. But it will be observed, that the present series of numbers ends precisely at the point where the registration of the former epidemic commenced. The deaths registered in the quarter ending Sept. 30, 1837, were 257; and in the quarter ending Oct. 3, 1840, they were 253.

At another time I will discuss certain slight corrections which are required in these calculations, and will show how the rata of increase for days, weeks, and any multiple of these elementary periods, may be deduced. It is now of more importance to show the practical bearing of the facts. What is the prospect before us? It may be seen in the previous tables. The deaths of hundreds, nay thousands, of children, are, probably, about to take place in the metropolis by small-pox; and the fatality of small-pox may be prevented by means of a discovery made by Jenner at the end of the last century. The epidemic *may* subside spontaneously, or it *may* spread its ravages to an unexampled extent; but it is more probable, that, if left to itself, it will increase at the present rate, and we may again see 500, and 750, and 1140, fall its victims in successive seasons. From the deaths (266) within the last six weeks, it may be inferred that the disease is spreading at least as rapidly as it did in former years.

It will not, I believe, be disputed by those acquainted with the subject, that if every unvaccinated person in the metropolis were vaccinated *within the next week*, the epidemic would at once be arrested; particularly if, at the same time, the miserable courts and streets, which it is now devastating, were thoroughly cleansed, the houses whitewashed, and the comforts of the inmates, on the approach of winter, attended to, to a moderate extent.

Is not a case for public interference, then, clearly made out? Should not an energetic effort be made to save these lives, amounting to *several thousands*, from small-pox? They are helpless children, the great majority of them have not numbered fifteen years; but that can be no reason for abandoning them to their fate,—to the hot fever, the blistering pains, the defacing hands, of this sad malady. They are, in many instances, the neglected offspring of the poor,—which again only gives them a stronger claim on humanity, justice, and protection of society.

I am perfectly aware that some steps have been taken to extend the practice of vaccination; but those steps have been slow, and the measures appear by no means equal to the exigencies of the case. *Five children, at the very least, are destroyed daily by small-pox* in the metropolis alone; and what has been done, or is doing, to put a stop to this tremendous sacrifice of human life, and the sufferings of the sick and dying? For the last four weeks the Tables of Mortality have repeated 35 persons died of small-pox, 54 died of small-pox, 60 died of small-pox, 58 died of small-pox, in the week. They will reiterate nearly the same emphatic facts week after week through the year, the number rising progressively. Vary the statement slightly, and what would be the effect of the announcement in the Times or the Morning Chronicle:—five children will be thrown from

London-bridge daily during the next week—the next twelve months—and the number will be raised to six, seven, and eight daily in the next season. The very supposition is revolting. Yet it gives but a faint idea of the reality. Instead of dying suddenly, with little pain, and in a few minutes, the unprotected sufferers linger many days, ere they perish; and the survivors escape as from the fire, with faces cicatrised, deformed irreparably, and perhaps blinded for life.

The lives can be saved in the actual, almost as certainly as they could in the imagined case; but their salvation demands a little trouble, and some expense. The parents are ill-informed; they do not know the danger of their children; they are not aware that nearly all who die have not been vaccinated; and that vaccination, producing a modified small-pox, is an effectual protection against the natural disease; they must be visited, talked to, reasoned with, and "compelled to come in," as Dr. Chalmers would compel people to go to church and heaven.

With the facts before them the people of this country can come to but one conclusion, that the entire population should be forthwith vaccinated, and that no trouble or expense should be spared to prevent the threatened sacrifice of life. The Legislature, last session, emphatically asserted this principle; and though the Small-pox Prevention Bill, introduced by Mr. Wakley, and supported by the voice of all parties in the medical profession, was set aside by Sir James Graham's Vaccination-Extension Bill, so much good was incorporated in the latter measure in committee, as to lead to the belief that the benevolent intentions of the Legislature, the government, and, in fact, of all parties, would not be entirely defeated. The Act has not, however, worked well; perhaps it has not had a fair trial. I shall not now enter into the controvesy, in which the poor-law commissioners and the vestries appear to me to have been clearly wrong, and the medical profession right; but cannot some compromise be come to, to meet the present emergency? Five persons are dying daily of small-pox in the metropolis, and they die because the poor-law authorities have determined not to give more than eightenpence for every life that is saved—for every child that is vaccinated—by the members of the medical profession, who discovered vaccination, and who not only deprive themselves of innumerable patients by the operation, but bestow more professional advice gratuitously than any other learned profession in the kingdom

All the medical practitioners of the country should be induced to vaccinate under the Act, and proper persons should be engaged immediately to go from house to house to ascertain how many persons have and how many have not been vaccinated. The unprotected should be vaccinated as rapidly as lymph could be procured. Small-pox may thus be arrested.

The arguments for vaccination are met by one objection among very ignorant and very philosophical people. It is, that while vaccination saves from small-pox, it exposes the person vaccinated to other diseases. That if he do not die of small pox he will die of something else, is unquestionable; but if this argument be good for anything, why save people from drowning, from fire, from any death whatever, from the murderer's guilty hand? Vaccination does not, it is true, like death by small-pox, exempt from other diseases; but there is not a shadow of proof, that a person who has had the modified, vaccinated small-pox, is more liable to other diseases than a person covered with scars of the natural disease.

Dr. Baron, in his Life of Jenner, relates the case of a country parish which obstinately held back for some time, and refused vaccination at the doctor's hands. All at once the people brought their children in great numbers. An epidemic had proved extremely fatal in the previous year; and the churchwardens discovering that the cost of coffins for those who died of small-pox formed a formidable item in the annual accounts, immediately exerted their influence, and induced the people to accept Jenner's kind offer. This story could only be true—and, in fact, could only be told of overseers, churchwardens, or poor-law authorities; but for the satisfaction of the persons who see no merit in anything but a reduction of the rates, it may be stated, that in the last epidemic the coffins for the victims of small-pox, at only £1 each, must have cost £30,000.

The middle and higher classes are protected by vaccination from small-pox; but when small-pox becomes epidemic and very virulent, experience has proved that a certain number of persons, in good circumstances, are attacked after vaccination, and a few die even of a second attack of small-pox. The rich are thus directly interested in the health of the poor. If the poor be swept off by an epidemic, the atmosphere is poisoned, and the rich are not always spared. For their own sakes, as well as from higher and more generous motives, the wealthy tradespeople, merchants, and inhabitants of the metropolis, should then surely exert themselves to suppress the contagious disease. The epidemic is now in Westminster and Maryiebone; it is spreading in the West-end, and is likely to be at the height just in the season when the families of the aristocracy are in town. They would naturally feel less apprehension for the safety of their children, if instead of eighty or ninety dying in the streets around them, the malady were extinguished; and as the votes of both houses of Parliament showed last year, would from pure humanity and an enlightened regard for the welfare of the community, sanction any efficient plan for the extension of vaccination.

The epidemic has already made considerable progress: many have perished irretrievably; but no further arguments are, I hope, necessary to induce all classes to unite in saving four thousand lives in the metropolis, and six times that number in England and Wales.

Nov. 20, 1840.

ON THE

TREATMENT OF ULCERS OF THE LOWER EXTREMITIES.

By Joseph Bell, Surgeon, Barrhead.

[*For the London Medical Gazette.*]

I intend in the present communication to place before the readers of the Medical Gazette a few cases of ulcers treated principally on that excellent plan which Mr. Baynton brought under the notice of the profession many years ago: a plan which, I am sorry to say, has now almost fallen into disuse. I trust that the following cases will have some effect, however trivial, in rescuing it from being lost to suffering humanity.

Case I. — Jan. 2, 1838. E. M'E——, æt. 30 years, an unhealthy looking female about middle stature, dark complexion. On the internal aspect of left leg, about its middle, there is a large ulcer, measuring in length 4 inches, in breadth 2½ inches at the upper part, and 3¼ inches at the lower; is nearly an inch deep; it is filled with black decayed cellular substance, and exudes a dark fœtid discharge, along with considerable quantities of blood; edges of sore rigid, callous, and slightly everted, having a line of a greyish colour around their margin; leg and foot much swollen, particularly about sore, around which, for the extent of four inches, the integuments are of a fiery red appearance, hot, hard, and unyielding to the touch. The integuments at the upper margin of the sore are undermined nearly half an inch; pain of sore very acute, particularly at night, when she can obtain no sleep; painfulness also prevents walking. Pulse 80; tongue white; bowels said to be regular, as is also catamenia. Sore commenced about three weeks ago, in consequence of falling against a chair, by which the skin was abraded.

> Admov. Nitras. Argent. ulceri, et utat. mod. Baynton. Habt. Pil. Plummeri, omni noct.

3d. Redness, hardness, around sore, nearly gone; swelling less; pain greatly relieved; slept a little during the night; the cellular substance which filled sore coming away. Cont.

4th. Pain, swelling, and redness gone; granulations commencing to spring up at bottom of sore; some purulent discharge over its surface. Cont.

6th. Sore granulating beautifully, and is much less in size; sleeps well, and is going about her usual avocations. Cont.

8th. Ulcer filling up rapidly, and is beginning to cicatrize around margins. Cont.

12th. Sore about size of a shilling, and is cicatrizing with rapidity. Cont.

21st. Sore healed, and in its place a firm cicatrix about the size of a halfpenny.

Case II.—April 11, 1838. John Findly, æt. 25 years, of a ruddy complexion, fair hair, blue eyes; pulse 68; tongue slightly furred. On external aspect of left leg, about its middle, are two ulcers excavated, of a round shape, with hardened edges, and covered with a thin acrid discharge; circumference of each 3½ inches, depth ¾ of an inch. A little lower down, and more to the back of the leg, there is a smaller sore, of a similar character and depth: sores very painful, and the integuments around them, to the extent of a hand's breadth, are painful, red, and tender; considerable pain and swelling along anterior margin of tibia, extending four inches above sores, and two and a half inches below them; bowels said to be regular. Sores commenced a month since; at first they had the appearance of small pimples, but have gradually assumed their present aspect. About 18 months since he had a similar ulcer on ankle of same leg. It was healed by Baynton's system.

> Utat. mod. Baynton, et habt. Pil. Plumm. j. om. noct.

13th. Sores are now looking healthy, and discharging laudable pus; pain nearly gone, as is also the redness and tumefaction which surround the sores; has slept soundly last night, which he has not done for some months. Cont.

May 3d. Sores healed.

Case III.—August 22, 1839. C. M., æt. 25 years, of a dark complexion, middle stature, full habit; pulse 70; tongue clean; has on the outer side of left leg, about three inches from malleolus, four ulcerated spots; the largest is about the size of a halfpenny, its edges are hard, irregular, and elevated, about a quarter of an inch deep, and its surface is covered with a layer of dirty yellow matter; discharge is thin and acrid; two of the others are about the size of a silver fourpenny piece, and the remaining one is rather larger than a sixpence; these resemble the first in their character, except the last, which is much deeper: integuments around sores very red, swollen; cuticle abraded, and very painful: the whole leg and foot is very much swollen; bowels and catamenia regular. Sores of fourteen months' duration; were caused by a fall against a piece of wood; has been under the treatment of several medical men. One dressed the leg nightly for several months with small pieces of adhesive plaster laid across sores.

Utat. mod. Baynton, et habt. Pil. Plum. j. om. noct.

24th. Sores greatly improved, are discharging healthy pus, and are granulating rapidly; inflammatory appearance of sk around sores gone, as is also pain. Cont.

27th. Sores cicatrizing, are nearly reduced one-half in size; no pain. Cont.

Sept. 2d. The three small sores healed; large one nearly so. Cont.

10th. Sore healed.

Case IV.—Feb. 22, 1838. A. B., a healthy-looking man, æt. 30 years, by trade a baker: tongue white and furred; pulse 86; appetite indifferent. On posterior aspect of right leg, over the gastrocnemii muscles, are two ulcerated spots of an oval shape, separated by a narrow band of integument; do not communicate; each about 4½ inches in circumference; edges irregular, and surfaces covered with a black thin fœtid matter, which is copiously discharged. On inner side of leg, in a line with these, there is another ulcer rather less, but of the same irritable appearance as the others; skin around sores to the extent of six inches, of a very deep red colour, exceedingly painful when touched; leg swollen: he is unable to stand from excessive pain; bowels said to be costive. About a year ago a varicose vein burst and discharged a considerable quantity of blood; this was succeeded by the two ulcerated spots on back of leg; the other sore made its appearance about eight months since. Has undergone, previous to appearance of present complaint, several courses of mercury for diseased liver; has applied innumerable remedies to sores without effect; was confined to bed by one medical man for three weeks, with no improvement.

Utat. mod. Baynton, et habt. Pil. Plum. om. noct. et bibat Decoct. Sarsæ lbss. b. d.

25th. Sores were very painful for about fifteen minutes after two first dressings, but was free from it at the last. Great improvement in sores; pain nearly gone; integuments resuming their natural appearance; sores granulating healthily, and laudable pus secreted: is able, since 23d, to walk about with freedom, and to attend his work. Cont.

March 1st. Sores cicatrizing rapidly; surrounding skin natural; no pain nor inconvenience from leg. Cont.

13th. Sores healed; general health improved.

Admov. fascia. et intermitt. alia.

Case V.—Jan. 20, 1838. J. R., æt. 18 years, a healthy-looking young woman, of fair complexion; pulse 72; tongue clean. She has an ulcer 2½ inches long, by 1¾ inch broad, on outer side of right foot; edges of sores irregular and elevated; foot swollen, and skin of a fiery-red appearance and very painful. Sore is the consequence of a burn which she received ten weeks ago. She has been using—

Liniment Ol. Lini. c. Aq. Calcis, and poultices of bread.

Admov. Nit. Argent Ulc. et utat. mod. Baynton.

Feb. 2d. Redness and swelling of foot nearly gone; pain relieved; edges reduced, and sore granulating healthily; is able to walk about. Cont.

8th. Sore has cicatrized, except about the size of a shilling, which is healthy; pain is totally gone.

16th. Ulcer healed.

Case VI.—April 1, 1840. Mrs. G., æt. 80 years, of a leucophlegmatic appearance: pulse 90; tongue furred. Has had an angry looking ulcer, about the size of a shilling, on outer side of dorsum of right foot, an inch from lower margin of external malleolus; surface of sore dark colour; slight discharge of sanies; surrounding skin inflamed and tender; veins of ankle and foot varicose. Sore of two months' duration, and is exceedingly painful, particularly at night.

Curat. Ulc. mod. Baynton, et habt. Pil. Plum. om. noct.

6th. Sore greatly better; pain gone; redness nearly so. Cont.

21st. Sore healed; integuments have resumed their natural appearance.

Cont. fascia. sed. intermitt. alia.

Case VII.—Sept. 15, 1839. J. C., æt. 24 years, a stout Highland girl, of dark complexion, rather above ordinary stature: tongue clean; pulse 76; appetite good. On right leg, over gastrocnemii muscles, there are two round-shaped ulcers about size of a shilling, quarter of an inch deep, edges callous, and a dark fœtid matter is discharged from them. On each side of inner malleolus there are two others, much larger and deeper, of a darker aspect, and discharging fœtid matter; leg and foot much swollen; integuments all around sores of a dark red appearance; very tender and painful; as is also sores, which are of seven months' duration; Bowels said to be regular; but has had no catamenial discharge for the last six months; is not pregnant. Has been using a bandage and some ointment to sores, without any relief.

Curat ulc. mod. Baynton m. s. et habt.
Pil. Plum. om. noct.

18th. Sores on upper part of leg are healing rapidly; those on ankle are looking much better; surrounding redness and swelling completely gone; has had no pain since second dressing (16th). Cont.

26th. Two upper sores healed; others greatly improved; reduced nearly to one-half their extent. Cont.

Oct. 14th. Sores healed; catamenia returned about six days after.

Case VIII.—Nov. 3, 1839. J. M'L., æt. 42 years, a stout man of middle stature; dark complexion; by trade a calico-printer; pulse 66; tongue clean; appetite good; has on inner aspect of left leg, two inches from malleolus, an ulcer of an oval shape; size, an inch and a half in circumference, five-eighths of an inch deep; surface dark, and exudes a thin discharge of a very offensive smell; edges irregular and callous; surrounding skin of a dark red colour; painful when pressed; considerable swelling of lower third of leg; and some of the veins enlarged, though not to any great extent; pain of sore very severe, particularly at night; bowels said to be regular; ulcer commenced about three months since; he has used a great variety of ointments without benefit. The same place ulcerated about eighteen months ago, and was healed in about six months by application of

Nitras Argent. and Cerate. utat. mod. Baynton, et habt. Pil. Plum. j. om. noct.

5th. Pain gone; skin around sore has lost its inflamed appearance; healthy looking granulations springing up on surface of sore; discharge is now of a healthy character; swelling nearly gone. Cont.

9th. Granulations are now level with edges of sore, which is cicatrized to a considerable extent; no pain.

12th. Sore healing rapidly. Cont.

21st. Sore healed.

Cont. fasc. sed intermitt. alia.

Case IX.—Dec. 9, 1837. Ag. R. æt 14 years, of a weakly habit; fair complexion; pulse 86. On right leg, over edge of tibia, is an excavated ulcer about the size of a halfpenny, and half an inch deep; bone not bare; surface of sore of a dark brownish appearance; it discharges a thin fœtid matter: around sore the skin to the extent of twelve inches in circumference is of a deep red colour; is slightly œdematous; ankle and foot swollen and œdematous; pain of sore intense; bowels regular; catamenia has not yet made its appearance. About eight days ago her leg came in contact with a piece of wood; the cuticle was abraded, and the present sore is the result.

Curat. ulc. mod. Baynton.

10th. Sore looks much better; discharge less fœtid and more purulent; surrounding inflammation nearly gone, as is also œdema; pain mitigated. Cont.

13th. Sore granulating in a healthy manner, pain and tenderness gone. Cont.

22nd. Sore healed.

Case X.—June 19, 1839. J. B., æt. 19, a stout lad; on right leg, about its middle, there is a dark unhealthy ulcer on the inner edge of tibia, about the size of a half-crown piece, three-quarters of an inch to one-eighth in depth; discharge dark, thin, and of very offensive smell. Around edges of sore (which are elevated and callous) integuments discoloured; red, and at some spots livid; sore painful; it is the consequence of a scratch received from a nail about eight months ago. General health indifferent; tongue furred; pulse 70; bowels regular.

Curat. ulc. mod. Baynton, et habt. Pil.
Plum. j. om. secund. noct.

20th. Sore looks better; discharge is decreased, and has assumed a more purulent character; surrounding discoloration less; pain greatly relieved. Cont.

22nd. Sore continues to improve; is filling up with healthy granulations. Cont.

Jan. 19. 1838. Sore healed.

Case XI.—Sept. 6, 1838. Jas. S., æt. 62 years, a stout old man, by trade a carpenter; he is in the enjoyment of good health, and is able to follow his occupation. Pulse 70; tongue white. On the internal and posterior aspect of left leg, five inches from head of tibia, there is a large excavated ulcer of an oval shape, eleven inches and a half in circumference; edges ragged, elevated, and callous; surface of sore of a very unhealthy appearance; discharge thin and acrid, abrading surrounding cuticle; depth varies from ⅛th of an inch to one inch; around circumference of sore, an inch in breadth, the integuments are hard and red, and painful to the touch; surrounding skin of a fiery appearance, and abraded at several points; he suffers great pain from sore; bowels costive. Sore commenced about three years ago: during that period he has employed a great many plans to effect a cure; such as ointment, nitrate of silver, pressure by a bandage and lead, &c.; from some of these means he obtained a temporary benefit, whilst others had no good effect.

Curat. ulc. mod. Baynton, et habt. Pil.
Plum. j. om. noct.

7th. Feels sore easier; redness of skin less. Cont.

8th. Considerable improvement; edges of sore less elevated; some healthy granulations making their appearance at its bottom; sore less in size; circumference ten inches. Cont.

12th. Sore granulating beautifully; discharge healthy; no pain; circumference is now eight inches. Cont.

20th. Sore nearly filled up with healthy granulations; is cicatrizing round edges. Cont.

29th. Cicatrization going on rapidly; sore not half its original size. Cont.

Oct. 10. About the size of a shilling is all that remains to be healed. Cont.

21. Sore healed.

Cont. fasc. sed intermitt. alia.

Case XII. June 8, 1839. M. M'F., æt. 21 years, of a ruddy complexion, stout make; has on dorsum of right foot two deeply ulcerated spots of an oval shape, each about three quarters of an inch in circumference; irregular, elevated, and callous margins. There is a third sore on outer side of malleolus; it measures in circumference seven inches, and on outside of leg, about two and a half inches from head of fibula, there is another, which is not quite so large as the last. Surface of sores is covered with a brownish layer of matter; discharge dark-coloured and fœtid; integuments immediately around sores hard and unyielding, and for a considerable space they are inflamed and painful to the touch; is unable to attend his work from pain. Pulse 76; tongue clean; appetite good; bowels regular. Ulcers of two years' duration; are the consequence of a severe burn; were at first dressed with

Liniment Ol. Lini, c. Aq. Calcis.

He has used different ointments, and has also got them dressed with small pieces of emplast. adhesiv. over which a bandage was applied. Nitras. argent. was also freely used, but no benefit followed any of these means.

Curat. Ulcus. Mod. Baynton, et habt. Pil. Plum. om. noct.

12th. Sores have now assumed a healthy aspect; are filling up with florid granulations; pain gone, as is also elevation and hardness of edges; is at his work (bleaching calico).

17th. Continues to improve; cicatrization has commenced. Cont.

20th. Sores on dorsum of foot healed; the others cicatrizing rapidly. Cont.

26th. Sores on upper part of leg well; that on ankle is now the size of a sixpence. Cont.

July 9. Sore healed; only complains of a little stiffness of ankle-joint.

The preceding cases may be considered as affording a fair example of the results which have taken place in my hands, from using the mode of dressing ulcers recommended by Mr. Baynton.

To explain at any length the method of this celebrated surgeon, may seem to some superfluous. It is, however, my decided conviction, that the majority of practitioners are either ignorant of it, or do not put it into practice. Dr. Hannay, of Glasgow, is the only medical man that I either have seen using it, or heard recommending its employment. If the present article should fall under his observation, I trust it will cause him to publish his extensive experience on the subject. No notice whatever is taken of this admirable plan in some of the most recent publications on surgery. In Lizars' "Practical Surgery," and in Burns' "Principles of Surgery," it is not mentioned. Both the authors recommend the use of a bandage and strips of adhesive plaster in indolent ulcers, in the manner described by Baynton; but they overlook the most important part of his system, viz. the application of cold water, which, in my opinion, is of the greatest moment to our success, as, without it, in many instances of irritable sores, the plaster and bandage will prove injurious. Mr. Phillips, in his excellent Lectures on Surgery, lately published in the Medical Gazette, in speaking of the treatment of varicose ulcers, observes, "It is by giving support that the strapping system of Baynton, and others, procures the rapid cicatrization of these ulcers; but although the cure is rapid, the relapse is also rapid. Baynton was accustomed to apply the straps completely round the limbs, commencing an inch below, and extending an inch above, the ulcer, and now and then they were intended to act like ligatures; at present, when this means is employed, the strap only partially surrounds the limb. . . . Even then it will often irritate the skin." (Vide Medical Gazette, vol. xxv., N. S., p. 424.)

In this quotation we have sufficient evidence that the Bayntonian system is fast falling into disuse; nay, that such is already the case. I hold that it is unfair to blame it with procuring only a temporary cure, when, according to the Lecturer's own showing, the plan under consideration is not properly applied. The object which Baynton had in view, in applying the straps around the limb, was to procure a small and fine cicatrix, in order to obviate the danger of a relapse. Again, we have no mention made of the cold water, which would, without doubt, destroy the irritation of the skin alluded to. Thus we observe that two of the parts of Mr. Baynton's plan are now become obsolete—the very steps which were peculiarly his own. The third particular, namely, the application of a bandage, cannot be called his discovery.

Baynton's system consists of three parts:—First, straps of adhesive plaster from two to three inches broad, and of sufficient length to surround the limb, and to overlap a few inches. These straps are to be applied by placing the centre of the strap exactly opposite the ulcer, over which the free ends are to be crossed, pulling them as tight as the feelings of the patient will permit. The first strap is to be placed a little below the lower margin of the sore; the second is to overlap it a little; the third to overlap the second a little; and so on till the ulcer is completely covered: a soft piece of cloth is then to be placed over ulcer; but I frequently dispense with this. Secondly, a bandage is to be applied, from the extremity of the limb to the articulation above sore. Thirdly, this bandage is to be kept constantly wet with cold water. The dressing to be changed every day, or every second day, according to the quantity of discharge and irritability of ulcer.* Such, then, is the Bayntonian system, which, when properly applied, is competent to cure, speedily and effectually, the irritable or inflamed, and the varicose, as well as the indolent or callous ulcer; proper attention, of course, being paid to the improvement of the general health—a *sine qua non* in every plan of treatment. I trust the cases which I have narrated in the preceding pages will tend to prove the truth of this assertion.

In selecting the cases from my notes, I chose chiefly those which come under the denomination of "irritable ulcers," and those that are called varicose; because even the authors who speak most highly of Baynton's plan consider it inadmissible in the treatment of ulcers of this description, and view it as merely applicable to the ures of indolent sores; or in cases where all inflammatory appearance has been subdued.* S. Cooper, Burns, Lizars, and many others, affirm that depletion, poultices, and absolute rest, are essential to the cure of irritable or inflamed sores. The cases which I have related I think at least will show that such does not always hold good; but, on the contrary, that the simple plan which I have used is quite sufficient to effect a cure, and, at the same time, to allow the patient to follow his usual avocation.

In the absence of all practical experience on the matter, the system strikes us as admirably suited for "irritable ulcers," which differ chiefly from those of an indolent nature in an inflammatory state of the integuments, with infiltration into the adjoining cellular substance. No better means can be employed to remove these conditions than the bandage and cold water. The pressure removes the inflammation, empties and supports the overloaded and enfeebled capillaries. The cold water is a powerful agent in the removal of the cutaneous inflammation; by decreasing the high temperature of the part, it produces a sedative effect. But these are not the only benefits derived from the bandage and water; they also act as stimulants to the ulcer, and thus establish a new and healthy action in the sore, which is at the same time kept constantly clean. I humbly submit, if this be not as rational a plan to remove the inflammatory condition which surrounds these ulcers, as either leeching or poulticing; and then it has this very great advantage, that the patient can walk about during the time his sore is healing.

In the treatment of ulcers there is one point of great importance, viz. to obtain a small and firm cicatrix, in order to prevent a relapse. In the plan under consideration we have a most powerful means of effecting this desirable object, in the strapping with adhesive plaster. At each dressing the edges of the sore are brought nearer together, to a degree which no other plan can effect. This drawing also promotes cicatrization, as must be evident from taking a glance at the manner in which this process is performed. The above circumstance makes the system well calculated for varicose ulcers, in which cases I order the bandage to be worn after the ulcer is healed (see Cases IV. VI. VIII.) The more that we consider the system, the more we are struck with its philosophic character. A more scientific piece of practice does not obtain within the whole range of surgery. In the bandage and cold water we have the most rational means of removing the inflammatory action which is established round the sore, aggravating the process of ulceration, and preventing a cure. We have also their stimulating effects upon the sore itself; and thirdly, by the plaster we can lessen most effectually the size of the cicatrix.

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* Vide Descriptive Account of a new method of treating old Ulcers of the Legs. 2nd Edition, 1799; and also Article "Ulcer," in Cooper's Surgical Dictionary.

* See Cooper's Surgical Dictionary, Article "Ulcer," and his First Lines of Surgery, p. 74—77. Sixth Edition, 1836.

Cases V. and XII. are instances of burns. I have treated several severe cases of this kind with equal success. M. Velpeau details sixteen cases of ulcers arising from burns, treated by the bandage and strap applied as Baynton directed, with the most astonishing results[*]. He does not, however, seem to have used the cold water, which would to a certainty have shortened the duration of his cases, and relieved the sufferings of his patients.

In conclusion, I would merely remark, that if the system of Baynton were properly practised, we would be saved the sight of those disgusting sores which meet the eye in the wards of our public hospitals, and the *opprobria medicorum* would be deprived of one of their most fertile contributors.

STRUCTURE OF CARTILAGE.

To the Editor of the Medical Gazette.

SIR,

WE have been taught since the days of William Hunter, that articular cartilage consists of fibres placed perpendicular to the surface of the bone; and it is well known that if the articular end of a bone be macerated carefully for a sufficient length of time, its cartilage will become really soft and velvety. I have been in the habit of illustrating this to my class, by having a bit of white velvet gummed on the head of the humerus. But the other day, in making a perpendicular section of the knee-joint, similar to what is delineated in Dr. Todd's Cyclopædia (Articulation), I accidentally got a beautiful view of the structure of the cartilaginous crust of the patella. I had made a perpendicular section of this bone from the front, and having stopped sawing just at the cartilage, I *tore* the two pieces asunder. The perpendicular fibres of the cartilage were now beautifully seen.

Perhaps this notice may be acceptable to your anatomical readers, as I have not seen this method of demonstrating the cartilages described in any of the works on the subject.—I am, sir,

Your obedient servant,
JAMES DOUGLAS.

235, George Street, Glasgow,
Dec. 31, 1840.

SEVERE INJURY OF THE HEAD.

To the Editor of the Medical Gazette.

SIR,

THE following case of recovery after the removal of considerable portions of the cranium, with loss of substance of the brain (occurring in the practice of Mr. Lawrence, of Brighton), may not be considered unworthy a place in your widely circulated journal.—I am, sir,

Your obedient servant,
EDMUND J. FURNER.

Brighton, Dec. 25, 1840.

Late in the evening of the 25th of last April, Mr. Lawrence was summoned by Mr. Camac, surgeon, of Seaford, to meet him in consultation upon a case of fractured skull. He arrived about twelve o'clock at night, myself and his son accompanying him, when we received the following account of the case:—The patient, William Coombs, sixteen years of age, in the employ of the Rev. James Carnegie, residing at Seaford, about six hours before our arrival had been thrown from a horse upon a hard road, and struck by the horse's feet on the left side of the head. He was taken up in a state of insensibility, and removed to his father's house, where Mr. Camac found him, perfectly insensible, with a very feeble pulse, and dilated pupils. Upon examining the head there was discovered an extensive laceration of the scalp, with fracture and depression of the temporal and parietal bones, to a very considerable extent, involving the squamous suture.

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[*] Vide Revue Médicale, Française et Etranger, Juin—Juillet, 1835; or Brit. and For. Rev. Vol. i. p. 582.

Mr. Camac, after removing two small loose pieces of fractured bone, requested that Mr. Lawrence might be sent for, the case being one of extreme danger.

Mr. Lawrence, having enlarged the wound of the scalp, was enabled, by the aid of the elevator, to remove five pieces more of depressed bone, some of which, from being driven into the brain, had forced a considerable quantity of cerebral substance, leaving a cavity, into which the finger could be passed to the depth of an inch or more: during the operation the patient cried out lustily, but became more sensible after it was completed, and soon fell into a natural sleep. The wound was carefully dresed by Mr. Camac, who has favoured me with the subsequent report of the case, and on whose skilful management the successful result must have greatly depended.

April 26th, nine o'clock, A.M.—The patient is sensible, and complains of pain in the head; reaction has taken place; pulse 100; skin hot; bowels have not been opened; eight leeches to be applied to the forehead: to take four grains of calomel directly, and an ounce of castor-oil after an hour, with a dose of mixture (containing a solution of Epsom salts) every four hours; cold lotion to be constantly applied to the head; low diet.

Five o'clock P.M.—Bowels freely moved, with a slight improvement in all the other symptoms.

27th.—Has passed a good night, and is decidedly better to-day: pain in the head partially relieved; pulse 96; skin cooler: the wound looking favourably: to have six leeches to the forehead, and continue the mixture and lotion as yesterday. The above treatment was continued with but slight alteration up to the 3d of May; the patient gradually improving.

May 3d.—The symptoms to-day have assumed a more unfavourable character, from the lad not being kept sufficiently quiet. He complains of darting pains in the head; skin hot and dry; pulse 100; the bowels open, with a healthy discharge from the wound. To be bled in the arm to six ounces; to take four grains of calomel directly; and continue the mixture, with the addition of fifteen minims of antimonial wine to each dose every four hours. The head to be shaved, and the cold lotion applied.

4th.—Passed a good night, and all the symptoms decidedly relieved: bowels freely moved; pain in the head much abated; pulse 94, and soft; skin more comfortable: a small blister to be applied to the nape of the neck, and continue the mixture every six hours. From this time he continued to improve: the wound was daily dressed with spermaceti ointment; the hair being kept closely cut. The granulations rapidly formed, and after a few weeks dressings were discontinued for straps of adhesive plaster, and the occasional application of the nitrate of silver, the cold lotion being continued. The pain in the head having subsided, and the appetite returned to its natural standard, a more generous diet was allowed, with the moderate use of exercise in the open air.

November.—The wound has been for several weeks healed, but he wears, as a protection to the part, a plaster composed of equal parts of adhesive and soap plaster, and is directed to take an occasional asperient, avoiding all stimulating diet. His health and strength are perfectly restored, and his intellects not at all impaired.

DISLOCATION OF THE TIBIA INWARDS

WITH THE ASTRAGALUS, AND FRACTURE OF THE FIBULA.

To the Editor of the Medical Gazette.

Sir,

I have the honour to communicate to you the following case, in the hope it may be deemed of sufficient interest to merit insertion in your journal. I have refrained from entering into any lengthened statements upon the case, contenting myself with simply recording the facts, partly as they were related to me, and partly from my own personal observation.—I remain, sir,

Your obedient servant,
R. G. Coombe.

Newcastle, Staffordshire,
Dec. 17, 1840.

Robert Middleditch, æt. 24, on December the 5th, fell off the vat in the brewery of Messrs. Combe, Delafield, and Co.; a height of sixty feet. His fall was unbroken, and he cannot describe the manner in which he alighted, as regards the position of the injured foot. Almost immediately after the accident he was conveyed to the Charing Cross Hospital, and notwithstanding the very short space of time that had elapsed from the receipt of the injury, the swelling which had supervened was very considerable. The nature of the accident was, however, easily discernible. There was a remarkable projection at the inner side of the ankle-joint, evidently caused by the dislocation of the tibia and the astragalus, with the lower fragments of the fibula attached to them; all the bones holding their relative position to each other, as was evidenced by the ability to perform flexion and extension of the foot with tolerable ease. A corresponding depression upon the opposite side of the foot existed, and about three inches above this point the fibula was fractured. The inner side of the foot was slightly inclined towards the ground, and the sole turned upwards and outwards to the same extent.

Immediately upon the patient being brought into the hospital several persevering attempts were made by Mr. Hancock to reduce the dislocation in the usual way, due attention being paid to the relaxation of the great muscles of the calf, without success. The limb was then placed in a comfortable position, a few leeches being applied, which were followed by cold lotions; and as the patient was accustomed to drink large quantities of beer, a pint of it was ordered him daily.

Nothing further was attempted up to Dec. 10th, on which day, the patient's system having been previously well relaxed by repeated doses of tartar emetic, another futile attempt was made by Mr. Hancock, assisted by Mr. Guthrie, to reduce it with the pulleys.

This attempt was only continued for a little more than a quarter of an hour, for as the extending power was being made equally from the dorsum of the foot, and from a little above the os calcis, it was thought that the cavity from which the astragalus was removed being situated between these two points, would thus be compressed, and the re-
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to allow extension to be made principally from that point. This was accordingly done, and on the following day the pulleys were again applied by Mr. Hancock and Mr. Guthrie, and gradually increased extension having been steadily maintained for upwards of an hour, the dislocation was reduced. Sloughing of the integuments over the inner ankle subsequently took place, exposing that apophysis. This case I believe to be the only one of a similar nature on record. I have in vain searched numerous surgical works, and have made inquiries of many professional men of considerable experience, with a view of ascertaining the existence of a parallel one. It seems to me to be very difficult indeed to give any explanation, in an anatomical point of view, how such an accident could occur, when we consider the great depth of the articulation between the astragalus and the scaphoid bones; the great number, strength, and elasticity of the ligaments connecting the bones engaged in this dislocation; and the very beautiful and excellent provision against separation of the bones of the foot from each other, derived from the arch which these bones collectively form. It is true it may be said that the very great violence which would be applied by a fall from so great a height as sixty feet, aided perhaps by some particular position of the foot as the patient came in contact with the ground, might rupture all the ligaments connecting the tibia, the fibula, and the astragalus, to the os calcis and the scaphoid bones: but if this were the case, would not the reduction have been comparatively easy to the great difficulty that seems to have been experienced?

ANALYSES AND NOTICES OF BOOKS.

> "L'Auteur se tue à alonger ce que le lecteur se tue à abréger."—D'ALEMBERT.

The Anatomy of the Arteries of the Human Body, with its Applications to Pathology and Operative Surgery, in Lithographic Drawings, with Practical Commentaries. By RICHARD QUAIN, Professor of Anatomy in University College, and Surgeon to University College Hospital. The Delineations by JOSEPH MACLISE, Esq., Surgeon.

publication is one of those splen-
d original works, which at once

do honour to the fine arts of the countries in which they are published, and to their respective authors for the share which they have had in contributing to the advancement of anatomical and surgical science. Such publications, from the rare talent and industry, as well as the great expense necessary for their completion, are not to be looked for often: we may, therefore, congratulate ourselves on the appearance, at the present time, and in our own country, of a production meriting, as we sincerely believe, to be classed with undertakings of this high description.

The author of the work before us has enjoyed, as must be well-known to the majority of our readers, abundant opportunities for practical observation of the subjects which he proposes to treat of; and, that he has fully availed himself of the advantages presented to him as the Professor of Anatomy in a large medical school, is satisfactorily proved, by the unexampled extent to which he has carried his inquiries, which have been founded, as he himself informs us, on an examination of more than nine hundred bodies.

"Several years," Mr. Quain says, "have elapsed since I became impressed with the belief, that the difficulties which have often occurred in the performance of those surgical operations, in which the larger arteries are concerned, have arisen in great part from want of sufficient acquaintance with the differences in anatomical disposition to which these vessels are subject—not merely those deviations in the origin of large branches, which are usually named varieties, but other peculiarities of various kinds which are liable to occur; such as those which affect the length, position, or direction of the vessels. Under that impression I was led to observe these circumstances more closely, and finally determined to obtain a record of the condition, whatever it might be, of the more important vessels in a considerable number of cases,—a record to be made especially with a view to points bearing on practical surgery.

"With this view, I examined with more or less attention the bodies which were received during a series of years for the study of anatomy in the School of Medicine in University College. These bodies, to the number of 930, were, with rare exception, so inspected with reference to the subject of my inquiries, that any thing unusual could not escape notice; and, in order to insure accuracy, when other occupations allowed, the arteries were carefully examined, and their condition noted at the time; attention being always particularly directed to those vessels, and to the points in their history, which seemed to be of importance in the practice of surgery.

"This detailed investigation was continued until the number of cases observed appeared such as would afford grounds for reasonable conclusions, both as to the limits of the deviations from the ordinary standard, and as to the relative frequency of their occurrence.

"At the same time that the observations thus made were written down, drawings were obtained of all the important peculiarities which presented themselves; and when it was practicable, the preparations were preserved.

"The varieties in the arrangement of the blood-vessels thus noted grew, as may be supposed, to be very numerous; but instead of difficulties multiplying with the number of observations, it was usually found that, as the facts accumulated, the transition from one state to a very different one ceased to be abrupt or without method, for others from time to time interposed, which served to link them together.

"Originally these observations were intended exclusively for the benefit of my class; but as the number and connection seemed likely to render them more extensively useful, I resolved to publish them. On examining with a view to publication, the materials which I had collected, it became obvious that their utility would be very limited, unless as a part of a full history of the arteries, with adequate delineations. In consequence a series of drawings, showing the arteries according to their usual arrangement, has been prepared, and to these are appended the observations previously alluded to. The work has thus grown under my hands, and has gradually assumed its present form."

There cannot be any doubt in the minds of those who consider the subject as attentively as its importance demands, that there is no other division of anatomy which has greater claims upon the attention of the practical surgeon than that which embraces the history of the blood-vessels; since, in reality, it is the consideration how these important structures may be implicated in his proceedings, that principally occupies the thoughts of the surgeon previously to undertaking any operation of consequence. Indeed, unless he has been enabled to form a clear judgment upon these points, he is prevented from advancing a single step without being harassed by the reflection that he is exposing himself to an imminent risk of failure in his attempt,—a failure which is almost certain to be productive of danger to the life of his patient, and injury to his own reputation. We are firmly convinced that there is no other hindrance than the dread of occasioning an uncontrollable hæmorrhage at each stroke of the knife, which prevents the greater number of surgeons from undertaking what, if it may not be termed the most difficult, or the most important, is, at all events, the most brilliant part of surgery, and the most striking in its results, viz. the performance of the great operations. With these feelings, we do not hesitate to express our belief that all teachers of anatomy or surgery; all hospital surgeons; and, indeed, all practitioners throughout this country, who are in the habit of performing operations, will gladly avail themselves of the invaluable assistance which a reference to the work before us is capable of affording them. By means of it, the surgeon, after long absence from the schools of dissection, will be enabled to refresh his fading recollection of the relative anatomy of the principal blood-vessels and nerves, and, for the first time, he will become acquainted with a greater number of possible deviations from the ordinary arrangement, than he could have learned from any other work extant.

It has long been regarded as a great objection to the valuable and expensive work of Tiedemann, that in it only the muscles and arteries are represented, whilst no notice is taken of the fasciæ, nerves, and veins—structures which are equally interesting to the surgeon. We are therefore inclined to regard it as one of the most important features of Mr. Quain's work, that in it we find all these structures depicted with equal care and exactness. In this respect, as well also as in the superior style of execution of the drawings, the present publication has greatly the advantage over the work of the Heidelberg professor. Indeed, we are not acquainted with any other anatomical or surgical work in which the advantages resulting from the rare combination of faithful accuracy in the representation of nature, with great beauty and elegance in the design and execution of the engravings, are more strongly exemplified than in the work before us. Possessing these qualities, it richly deserves to be classed with the beautiful works of Cheselden, Camper, Wm. Hunter, and Scarpa.

The execution of the plates furnishes indisputable proof that Mr. Quain has been peculiarly fortunate in possessing the assistance of a gentleman, who knows himself to be not less skilful in delineating with his pencil, than he is conversant with the anatomy of the parts he is called upon to represent.

In conclusion, we venture to predict, that the accuracy, the originality, the sterling practical usefulness, and, comparatively speaking, the moderate price of this beautiful work, will soon place it, not only in every public medical library in the United Kingdom, but in that of every professional man who feels deeply interested in the progress of anatomical science, or in the efficiency and perfection of operative surgery.

A Retrospective Address, delivered at the eighth anniversary meeting of the Provincial Medical and Surgical Association, held at Southampton, July 22d and 23d, 1840. By R. Wakefield, Scott, M.D., &c. Worcester, 1840. 8vo. pp. 98.

Among the points touched upon by Dr. Scott in his sensible and judicious address, are, the controversy concerning Sir C. Bell's discoveries in the nervous system; the physiology and pathology of the fluids; excretory ducts; the structure and functions of the spleen; and varicose capillaries. He thinks that "this condition of the capillaries was sufficiently familiar to Dr. Hake previously to his having seen the preparation of Mr. Kiernan, though it is questionable whether he would have extended the application of that knowledge so far as he has subsequently done, had it not been owing to the preparation shown him, accompanied by the statement of Mr. Kiernan, that varicose capillaries were the basis of his investigations on the anatomy of cancerous formations." (p. 57-8.)

Dr. Scott next mentions the researches into the structure of mucous membranes; nutrition; and Jacquant on the follicular apparel [apparatus] of the intestinal canal. He then glances at some points in medical jurisprudence. Recent experiments have convinced him that the hydrated tritoxide of iron is really an antidote to arsenic. He speaks of an interesting case of suspected infanticide in France, where the viscera of the chest and abdomen were found to be quite healthy, but where two-thirds of the cavity of the cranium contained nothing but a serous fluid. "The only vestige of the cerebellum consisted in a little prominence at the upper part of the cavity. The two lobes of the cerebellum could be distinguished, but were in such a state of ramollissement as must evidently have resulted from disease. The tuber annulare and medulla oblongata were the only parts of the brain which were distinct and intact," (p. 64-5.)

In Materia Medica our author mentions the new moxas of Gräfe; monesia; *canuabis Indica*, or Indian hemp; *gentiana cruciata*; &c. &c. Under the head of medicine, Dr. Scott touches on fever, phthisis pulmonalis, diseases of the urinary organs, &c.; and the essay terminates with the articles Medical Statistics, Bibliography, Biography, and a few concluding remarks.

Dr. Scott's address will have the effect of awakening the attention of many practitioners to the important fact, that medicine is an ever progressive art.

Memoranda regarding the Royal Lunatic Asylum, Infirmary, and Dispensary, of Montrose, &c. By RICHARD POOLE, M.D., &c. Montrose, 1841.

THE Lunatic Asylum of Montrose, the first of the kind in Scotland, was built in 1781, the chief founders having been Alexander Christie, the Provost of Montrose, and Mrs. Susan Carnegie, of Pitarrow. The work before us, drawn up by Dr. Poole, the medical superintendent of the asylum, is a minute history of the charity from its foundation to the present time. There is also a sufficient account of the Infirmary and Dispensary. The Montrose Asylum contains between seventy and eighty lunatics, and is maintained partly by voluntary contributions, and partly by the sums paid by various parishes for the board of the paupers belonging to them. Before this asylum was built, says Dr. Poole, Lord Fountainhill's quaint *notandum*, written in 1681, was still in some measure applicable.

"Mr. Alexander Burton gave in a complaint to the Secret Council against his brother, for putting him in Hopkirk the chirurgeon's hand as if he had been a madman, &c. He answered (the allegations to that effect): They had his portion in their hands, and he was only asking his annual rents; and to refuse him his own, and thrust him *in ergastulo*, and treat him as a fool, would raise pepper and passion in any man's nose, and then they termed these acts fury, for *ira est brevis furor*. In Scotland, having no Bedlam, we commit the better sort of mad people to the cure and tameing of chirurgeons, and the inferior to the scourge." (p. 1-2.)

Our author urges, with great propriety, the erection of lunatic asylums in Scotland by compulsory assessment. He advocates the system of non-restraint most earnestly, and his theories are confirmed by the practice of the establishment over which he presides, as well as by that of others. Dr. Poole's work does credit to his humanity, and will be consulted with advantage by practitioners. In case he should rewrite, we wish he would subjoin a recapitulatory chapter, giving the essence of the book in some twenty pages, and also add running titles throughout the work.

MEDICAL GAZETTE.

Friday, January 8, 1841.

> "Licet omnibus, licet etiam mihi, dignitatem *Artis Medicæ* tueri; potestas modo veniendi in publicum sit, dicendi periculum non recuso."
>
> CICERO.

THE MANAGEMENT OF THE INSANE.

THE question respecting the Management of the Insane, to which we alluded some time since, and upon which the opinion of the intelligent portion of the public deserves nearly as much consideration as that of members of our profession, is that which relates to the measures that should be taken before a person can be placed under restraint as a lunatic, and deprived of the management of his affairs. In the decision of this question the impossible definition of lunacy or insanity is often asked for; but if it could be given, it could scarcely form a secure basis on which to determine whether or not the supposed lunatic should be removed from society; for, as we remarked on the occasion of the trial of Edward Oxford, the definition must always have respect to the condition of the individual, and the external circumstances in which he is placed. Indeed, the further history of that individual offers all the confirmation that our assertion needed; he is now in Bethlehem Hospital, and, as we are informed on good authority, evinces no disposition, and performs no act, which might not as well exist in, or proceed from, a thoroughly sane man—or, at least, one whom all the world would allow to act without restraint, upon his own personal responsibility. In short, the circumstances under which Oxford's insanity was evidenced, and on the existence of which it mainly depended, having ceased,—there being no applause or wonder to be excited by attempting mischief in Bedlam, and none but self-imagined queens to inflame his democratic notions,—he is become quiet and harmless, and, so long as he remains in his present abode, will continue so.

Now, in all Oxford's history there was nothing which required medical knowledge in order that it might be justly decided what his fate should be. The whole nation felt and said that it was the attempt of a madman—of one who did not weigh the consequences of his act—who appreciated rightly neither the enormity of his crime, nor the terror of the punishment he must certainly draw down upon himself. But suppose his insanity had existed not in the motive (whatever it was) which impulsed him to fire at the Queen, but in some of the propensities which anticipating heirs are so apt to deplore, and anxious to restrain in their relatives—suppose he had been devoted to drinking, gambling, or any other foolish mode of spending his money, and had followed these pursuits with as much rashness, and as little reason or thought for the future, as guided him in firing at the Queen—would the nation have thought him mad, or demanded his being secured in Bedlam? Oh no! At the worst he would have been called by the prudent an idle silly fool, and by his companions a daring hare-brained lad! but neither physician nor layman would ever have thought of restraining him from doing mischief either to himself or to others.

Yet it is evident that cases of this latter kind are just those in which the question of what should be done with a supposed lunatic is most often raised, and in which the public have an undoubted right to claim that the decision should not rest entirely with the members of our profession; for in these cases the question is not entirely a medical one, nor are the circumstances such as only one educated in medicine can judge of. The main question in a case of doubt of this kind is, is the person accused of insanity capable of managing his own affairs? and surely the old legal maxim, "cuique in suâ arte credendum" here merits application. Except that their habits, and the necessities of the study of their profession, make medical men, more than any other class, observers of the characters of those with whom they mix, and that they are thus more likely, *in general*, to detect the extravagances of thought that fill up the boundary between what the world calls respectively eccentricity and madness—except for these circumstances, we cannot but think that, in a doubtful question of insanity, they ought not to be the only judges whether a man is capable of conducting his own business. For to form such a judgment requires not so much a knowledge of medicine as of the business in question. The activity which, displayed in one business, would be rashness and madness, in another becomes a laudable boldness; the speculations that in some circumstances a man may reasonably undertake, in others he would be deemed mad to engage in; the dissipation that one man might join in, and retain his character for sanity, another might be held mad for giving himself up to. Now who is likely to be the best judge in these cases, if not one who knows the various modes of undertaking business in general, or in particular that of the person whose sanity in the conduct of his affairs is called in question? There are a hundred other cases of the same kind; but we will not now point them out. Some of them will immediately occur to the reader, and will convince him, if he will candidly consider them, that there are many instances of supposed insanity in which medical men are not the only, and, perhaps, not even the best judges, whether the patient, or, more properly speaking, the accused, is or is not capable of managing his own affairs.

But it may be said, what is the need of this disturbance of old systems? the injury done to a man by a temporary confinement is but temporary, and is commonly of such excellent effect in curing him of his eccentricities, that he never afterwards runs any risk of being thought mad again; besides, he can apply for his discharge to visiting magistrates, and there is the commission *de lunatico inquirendo* to prevent all this mischief. This is all very well, and would be very wise if it were true. But those who would thus argue lose sight of the fact that when a man has been once confined in a lunatic asylum, or been under the care of a keeper, his character (at least for competency in business) is destroyed for ever among those with whom he formerly associated, so that he is usually compelled, when discharged "cured," either to remove far from his former home, or to remain there constantly distrusted. Besides, it cannot be agreeable for even the most sane man thus to be put upon his trial at a disadvantage, such as every one must labour under who has been once confined. When a young man, defending perfect freedom of inquiry and opinion on religious subjects, urged that they could, at least, do no harm, for that truth would always come out and shine brighter after every trial, Dr. Johnson said to him, "And pray, sir, how would you like, presuming you to be innocent, to be put on your trial for your life once a week?" Something of the same kind might be said in this case. Who would like, having been, as he thinks, unlawfully committed to restraint as a lunatic, to be put on his trial to prove his sanity? It is surely a trial that the wisest and the vainest might alike shrink from, and feel some distrust as to the result.

As to the commission *de lunatico inquirendo*, as a safe-guard against the unjust committal of lunatics, it is applicable only to a small portion of cases, and even in these is but of limited utility. The mention of it reminds us of another good saying. A young lawyer, full of his profession, thought to overwhelm one who was speaking of the difficulties the poor endured in endeavouring to find justice for their obvious claims, by saying, "There are the laws, sir; the law and the courts are open to all; none are excluded frem the law of England." "True," it was answered, "and the London Tavern is open in the same way to all alike—who can pay for it." And so it is with a commission *de lunatico;* its expenses are such as none but the rich can bear, and such as none expose themselves to but those who have reason to hope for profit from its result.

Besides, this commission is obtained by application of those who are anxious to prove the existence of lunacy; what is wanted is something that should serve as a resource for the one accused, —some court in which the state of his mind might be fairly judged of by a sufficient number of competent and impartial persons. Such a court might be open to the appeal of any lunatic who chose to demand his freedom; and to avoid the frequent, but vain claims of those about whose insanity no doubt could be entertained, a visiting magistrate, or any justice of the peace, might first be required to certify that the case of the petitioner deserved inquiry, of which fact he might judge either by a personal interview, or by the evidence of a rationally written letter, or even by the favourable testimony of witnesses. As in the case of a common commission *de lunatico inquirendo*, the jury should be twelve impartial, not professional, persons, and the court should have the power of calling before them, and ordering the payment of reasonable fees to medical men, in all cases in which their evidence was deemed necessary to confirm or weaken that of other persons conversant with the accused, with his habits of life, the nature of his business, and so on. In short, there should be a court similar in nature to that at present held under the Chancellor's commission, but in which the supposed lunatic should stand in the relation of a plaintiff, and not in the disadvantageous position of a defendant.

Such a court, easily open to petitioners, and conducted with all possible economy, and to which the truly necessitous might appeal *in formâ pauperis*, would remedy all the evils which are reported to exist in the unnecessary detention of lunatics after their cure is perfected. But the main object of the legislation, to which it is not at all improbable the recent excitement on the subject of lunatic asylums may give rise, should be to prevent the committal of any to restraint for whom it is not absolutely required. Such an event is a disgrace to any civilized country, and its avoidance more merits the care of a legislature than half the schemes that have of late occupied the attention of our senators do. The obvious means of prevention would be not to allow a person to be placed under restraint for more than a few days in his own house, or to be removed at all to an asylum, except with a certificate, signed not only by his medical attendants, but by two or more magistrates, or other respectable men, not interested in his case, and who had personally visited him; and to provide that in all doubtful cases a person so restrained might appeal within another week of his confinement, upon obtaining the certificate of some other magistrate that his case deserved inquiry.

We mention these only as hints for the formation of some plan, which might be followed in order to obtain a remedy of those glaring evils of unjust and unnecessarily long confinement, wherever they exist. Of course we do not believe a tithe part of the accusations that are popularly raised about them; yet it is not improbable that they have their foundation in some little truth. Whether they have, or not, it matters little for the interests of the profession, to which suspicion is almost as injurious as proven guilt. The suspicions of the public are now actively awakened—the *Times* has admitted the question into its columns, and has given its sanction to the public excitement, and through its medium there is now scarcely a cottage in the land whose inhabitants have not learnt to suspect some ill of *mad-doctors*, and all who have to do with the insane. Let the medical profession, therefore, who are conscious of their own honesty and good intentions, be the first to petition for some new measures, which may place them beyond the reach of suspicion, though they may impose no greater restraint on their conduct than their consciences now do.

MIDDLESEX HOSPITAL.

CASE OF WOUND IN THE ORBIT.—FRACTURE OF THE ÆTHMOID BONE.

A middle aged man was admitted, late in the evening of the 28th of December, with a penetrating wound in the left orbit, and sudden loss of vision in the right eye. He stated that he met with the accident just a short time before, while assisting to raise a horse that had fallen, owing to the slippery state of the streets. He was close to the head of the horse, when the animal, unexpectedly making an effort to rise, struck him on the left eye with so much violence as to throw him to the ground, yet without his being stunned. He was taken immediately to a chemist's shop, when, besides having a deep incised wound between the left eye and the nose, he found that he was completely blind in the *right* eye. On describing the accident more minutely, he expressed his belief that it was not the horse's head which had inflicted the blow, but that the blinker, or some metal ornament on the bridle, must have struck him.

December 29th, 1 o'clock P.M. — The wound is situated at about a third of an inch from the inner commissure of the eyelids, and extends downwards from under the eyebrow for about an inch. It is apparent that the lachrymal canals, and also the tendo oculi, must have been divided. A probe was introduced to the depth of three-quarters of an inch into the wound, in the direction of the inner wall of the orbit, but without the bone being felt exposed. The blood which issues from the wound is thin, as if mixed with tears. There is a trifling degree of ecchymosis in the eyelids, close to the wound; but the eye itself is uninjured. The most remarkable circumstance connected with the accident is the total loss of vision in the *right* eye, without there being any perceptible injury to that eye. Its sensibility, as well as all its different motions, is perfect; but he is absolutely blind on that side, and the pupil is dilated to the utmost. A lighted candle was held before the eye—so close that he said he felt the heat of it—but he could not distinguish the flame in the least degree, and the iris did not contract. He answers questions promptly and clearly, and evinces no symptom of injury extending to the brain, except that he complains of a little headache. The bones of the nose were carefully examined, but no crepitus could be felt; neither was there any ecchymosis to indicate injury on the right side.

The wound was dressed with adhesive strapping, and a compress. He was ordered, by Mr. Shaw, Jalap, gr. xvj. c. Hydr. Chlorid. gr. iv.: to be followed in four hours with salts and senna. After the operation of the purge he is to take Hydrarg. Chlorid. gr. ij. c. Pulv. Antimon. gr. iij. 6tis horis.

30th, 1 P.M.—He has been delirious during the night, and now lies insensible, or only to be roused with difficulty. The symptoms are those of inflammation affecting the membranes of the brain. The bowels have been frequently and copiously evacuated.

> The head to be shaved, and cold water applied. V. S. ad ℥xvj. The calomel and antimony to be given every four hours.

Half-past 10 P.M.—Up to six o'clock he remained much in the same condition as at the former visit. He is now convulsed, lying curled up on his left side, with the arm and leg flexed and stiff, and the right in rapid and constant motion. His breathing is laborious. The pupil of the right eye is now contracted. The calomel, without the antimony, to be laid on his tongue, as he cannot be made to swallow a pill. A blister to be applied to the nape of his neck.

31st.—There is no material change. The right eye does not move, although it retains its sensibility. He was ordered to continue the calomel, cold to the head, and to have the blister dressed with mercurial ointment.

Jan. 1st. — The breathing is stertorous and frequent. He now lies on his back. The spasm which affected the left side, and more especially the left arm, has subsided, and there is now hemiplegia of this side, the right side being tranquil. There being considerable heat in the head, eighteen leeches were ordered to the right temple. Sinapisms to his legs.

2nd.—He died early this morning, having, by the nurse's account, become convulsed again on the left side, just before death.

Post-mortem examination. — Upon raising the calvarium, and removing the dura mater, an excessive degree of vascularity was observed, with a copious deposit of lymph between the archnoid membrane and pia mater, over both hemispheres. The brain, on being sliced down, was likewise unusually loaded with vessels. A large accumulation of serum, with purulent matter diffused in it, was found in both the lateral ventricles. When the anterior lobes were raised, they were found adherent in all their under surface to the dura mater, by means of coagulable lymph. Upon the optic nerves being exposed, that on the right side was seen to be torn completely through, or its ends only joined by delicate membrane, close to the optic foramen. The base of the brain, extending from the medulla oblongata to the commissure of the optic nerves, was thickly covered with a layer of lymph, which obscured the roots of the nerves. In the posterior part of the right anterior lobe, close to the injury of the optic nerve, the brain was bruised, softened, and ecchymosed, to the extent of about a square inch of its surface, and for the depth of half an inch, so as to approach close to the anterior cornu of the lateral ventricle. The cause of the laceration of the brain, and tearing across of the optic nerve, was found to be a fracture of the cerebral plate of the æthmoid bone, including part of the sphenoid, which forms the roof of the foramen opticum. A fragment, consisting of a thin plate of bone, was found insulated, or hanging loosely attached by dura mater, to the fore part of the sella turcica, above the right cavernous sinus; and it seemed obvious that this piece of bone, on being driven off, had torn the optic nerve, and caused the laceration of the brain. Upon more minutely examining the wound of the orbit, as by introducing a probe, it was found that the point could be made to pass, without any force, and by a slight degree of management, into the crushed part of the æthmoid bone, and to appear within the skull. It was accordingly evident that the object by which the blow was inflicted must have been pointed, and probably had an obtuse end; that it entered the orbit so as to strike the os planum and force it inwards; and the force being communicated in a direction upwards at the same time, the blow had the effect of fracturing the cerebral plate of the æthmoid bone, and lacerating the optic nerve on the opposite side.

NEW REMEDIES.

Lozenges of lactate of iron.—M. Cap recommends the following formula: an ounce of lactate of iron, an ounce and a half of sugar, and enough gum Arabic to make lozenges each weighing fourteen grains, and containing one grain of lactate of iron. From six to twelve are to be taken daily. To ascertain if the lozenges really contain the lactate of iron, dissolve one of them in water, and add a little tannin. The solution becomes black, if the preparation is well made; but if it remains colourless, it contains no lactate of iron. [But, surely, other salts of iron would give a black colour.—*Translator.*]

Johnson's Syrup.—The patent granted to the inventor for five years having expired, this syrup has become public property. It consists of an ounce of syrup of liquorice, forty-six grains of the fresh juice of asparagus heads, and the same quantity of the syrup of mallow.

Paullinia. — Dr. Gavrelle, who passed many years in the Brazils, became acquainted there with a remedy called *Paullinia*, which when powdered and mixed with the chocolate nut, is used as a ptisan against diarrhœa and dysentery, and, generally, as a tonic. It is the fruit of a shrub of the same name (*Paullinia sorbilis*), and of the colour of the chocolate nut; it has a peculiar smell, and a bitter taste, resembling that of ratanhy. The seeds are taken out of the capsule, dried in the sun, and powdered. They contain gum, starch, a resinous matter, of a brownish red colour, an oil, tannin, and a crystallizable substance with the chemical properties of caffein. Dr. Gavrelle has used the remedy in France also, with advantage, in the diarrhœa of the phthisical, chlorosis, paralysis, migraine, long convalescence, &c. The most suitable preparation is the alcoholic extract made into lozenges, syrup, pills, powders, tincture, and ointment.

Pitch against piles.—Dr. Wardleworth assures us that he has used this remedy with advantage in many cases, both of external and internal piles. His usual formula consists in ordering 3½ grains of pitch to be made into pills, two of which are to be taken every evening. The well-known efficacy of balsamic remedies in piles may perhaps serve to recommend these pitch-pills.—*Zeitschrift für die gesammte Medicin.* Sept. 1840.

ABSCESS OF THE LIVER,

WITH PERFORATION OF THE STOMACH AND ABODOMINAL PARIETES.—RECOVERY.

Dr. Kreig, of Merseberg, relates this case. —Mrs. Engelsardt, a tall brunette, æt. 31, mother of three children, the youngest of whom was 7 years of age, took ill in January, 1838, of the gastro-enterite, then epidemic here; with ulceration of the mucous membrane. Within three days the disease began to decline; every day she appeared to get better, and was able to leave her bed for an hour at a time, when an exposure to cold suddenly gave her disease the following dangerous turn.

On the first examination of the abdomen, on the 8th of January, a tumour, the size of a fist, projecting forward, and irritable when pressed upon, somewhat elastic, was perceived in the epigastrium.—The patient declared that she had this tumour already six years, and she thought it had been caused by violent straining after an emetic; it gave her no uneasiness except a feeling of tightness after frequent or plentiful meals; it had not grown larger for many years, and annoyed her alone on this account, that she could not wear a girdle, and was obliged to wear her clothes quite loose. This being the case, the treatment was directed to the fever, and little attention was directed to the tumour, as it did not appear in any way to modify the course of the disease. The liver, however, seemed somewhat enlarged, and, as is usual in fever of this intermitting type here, where liver as well as spleen is commonly engaged, it was thought probable that the cause of the fever proceeded from it. No suspicions, however, were entertained of there being any more serious lesion, and we were unwilling to believe that the tumour could be a hernia of the stomach. However, on the 14th of February, a rigor came on in consequence of the cold above mentioned, which first occurred every day, then each evening, then in a slighter degree morning and evening, and ended each time by a hot and sweating stage. At the same time the right hypochondrium and the whole right side to the shoulder began to give great pain, a severe cough came on, and the skin assumed a jaundiced appearance; the urine was scanty and saturated with the phosphates, the bowels were constipated, and the abdomen and feet began to be dropsical. Three venesections, leeches, calomel, quina, and mercurial ointment, did not prevent the approach of hectic fever. Meanwhile the tumour in the epigastrium became more painful and irritable to the touch, and had acquired the size of half a head of cabbage. Percussing it caused a tone as though it contained much air; yet was it evident that there was a large abscess of the left lobe of the liver, to evacuate which must now be the object of treatment. Poultices were applied, and it was evident that the skin was becoming redder and redder. On the 7th March, after having eaten some soup, she was suddenly seized with a violent fit of continued sneezing, during which a highly disgusting smell mounted, "as if from the stomach," into the nostrils. After a few seconds, a shocking taste became perceptible in the mouth, and violent vomiting succeeded of a purulent fluid, mingled with mucus, of a yellowish green colour, and most horrible stench, like the smell from the intestinal contents of a putrid body.* Shortly after discharges from the bowels of a similar nature occurred. On the succeeding days, a similar fit of ominous sneezing, accompanied by vomiting, and the same disturbance in the tumour as mentioned before, with violent coughing, causing rigors. Rigors also occurred after every attempt at taking food. The patient was now in a very melancholy condition. An access of hectic fever, morning and evening, extreme feebleness, the upper parts of the body emaciated, to the last degree, the abdomen and legs swollen, thirst and hunger to a painful degree, but not daring to gratify either on account of the dreadful vomiting, painful and disgusting to herself, and unendurable to those about her. There was nothing to be expected but death!

On the 25th March, Dr. King had the boldness to open the abscess. Much air rushed out, the tumour sank, and gradually a matter similar to what had been discharged by stools and vomiting was given exit to.

From this moment the condition of the patient improved. The discharge was kept up from the opening in the epigastrium by warm poultices; the irritability of the stomach decreased, vomiting gradually ceased, the alvine discharges still exhibited a yellowish brown pus mingled with fæces. Fresh buttermilk, given in increasing quantities, served both for food and medicine. The febrile attacks yielded, the urine flowed in considerable quantity, the œdema in abdomen and limbs decreased visibly, and sleep for many hours refreshed the patient.

The discharge from the opening was sometimes streaked, but not in other respects changed. The abscess healed towards the end of April. A few days after the patient was worse. There were fever, tendency to vomit, purging as heretofore, and dropsical swelling of the belly. The navel projected like a hernia, and increased in size to that of a child's fist. An incision was made, and under the application of poultices a large quantity of the yellowish green matter, not so offensive as before, was discharged. Every thing now proceeded better, convalescence was no more interrupted; the incision healed, and in July, the patient, though reduced to a skeleton, was able to leave her bed. Since then this patient has perfectly recovered, is able to eat any kind of food, and perform laborious tasks without any difficulty.—*Medicinische Zeitung*, No. 9, Feb. 1840; and *Dublin Journal*, Jan. 1841.

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* Omnino consimilia ex hepatis ulceribus promanare solent his quæ e mortuorum corporibus distillant. Ætius, Tetrabibl. III. Sect. II. c. 20.

MONTHLY LIST

OF

DRUGS ON SALE IN THE ENGLISH MARKET,

With their Prices and several Duties.

(From the Official Returns, Jan. 5, 1841.)

		Price.							Duty			Duty Paid.	
									and 5 per cent.			In 1839.	In 1840.
		£	s.	d.		£	s.	d.		s.	d.		
Aloes, Barbadoes, D.P.	c	15	0	0	to	30	0	0	B P lb	0	2		
Hepatic (dry) BD	c	5	0	0		10	0	0	F. lb	0	8	121,435	120,465
Cape, BD.	c	3	0	0		4	5	0					
Anise, Oil of, German, D.P.	lb	—				—			F. lb	1	4	970	—
E. I.	lb	0	5	0		0	5	6	E. I.	1	4	1,655	1,544
Asafœtida, B.D.	c	1	10	0		3	10	0	c	6	0	79	24
Balsam, Canada, D.P.	lb	0	1	0		0	1	1	lb	0	1	6,115	13,636
Copaiba, BD.	lb	0	1	8		—			c	4	0	871	643
Peru, BD.	lb	0	4	6		—			lb	1	0	1,017	825
Benzoin (best) BD.	c	25	0	0		50	0	0	c	4	0	76	108
Camphor, unrefined, BD.	c	10	0	0		—			c	1	0	565	444
Cantharides, D.P.	lb	0	3	3		—			lb	1	0	16,554	16,376
Caraway, Oil of, D.P.	lb	0	9	0		—			lb	4	0	1,180	1,253
Cascarilla or Eleutheria Bark, D.F.	c.	3	10	0		—			lb	0	1	14,490	5,983
Cassia, Oil of, BD.	lb	0	10	6		—			lb	1	4	2,903	3,185
Castor Oil, East India, BD.	lb	0	0	4		0	0	10	c	1	3	7,233	55,93
West I. (bottle) D.P.	1½lb	—				—			—				
Castoreum, American	lb	0	17	0		0	18	0	lb	0	6	619	801
D P. Hudson's Bay	lb	0	18	0		1	0	0					
Catechu, BD. Pale	c	1	1	0		—			c	1	0	53,160	48,318
Dark		1	6	0		—							
Cinchona Bark, Pale (Crown)	lb	0	2	0		0	3	6	lb	0	1	41,458	50,548
BD. Red	lb	0	2	0		0	4	0					
Yellow	lb	0	4	0		0	4	4					
Colocynth, Turkey	lb	0	1	6		0	2	9	lb	0	2	9,048	10,417
D.P. Mogadore	lb	0	1	0		—							
Calumba Root, BD.	c	0	12	0		1	15	0	lb	0	2	10,973	9,384
Cubebs, BD.	c	3	0	0		3	10	0	lb	0	6	31,922	39,100
Gamboge, BD.	c	5	0	0		15	0	0	c	4	0	66	68
Gentian, D.P.	c	1	10	0		—			c	4	0	616	470
Guaiacum, D.P.	lb	0	1	0		0	3	0	c	6	0	89	15
Gum Arabic, Turkey, fine, D.P.	c	12	0	0		13	0	0	c	6	0	9,373	7,759
Do. seconds, D.P.	c	7	0	0		7	10	0					
Barbary, brown, BD.	c	1	19	0		2	0	0					
Do. white, D.P.	c	5	10	0		—							
E. I. fine yellow, BD.	c	2	5	0		2	14	0	c	6	0	6,982	7,879
Do. dark brown, B.D.	c	1	15	0		2	5	0					
—— Senegal garblings, D.P.	c	3	0	0		—			c	6	0	24,209	24,698
—— Tragacanth, D.P.	c	8	0	0		12	0	0	c	6	0	225	87
Iceland Moss (Lichen), D.P.	lb	0	0	2¼		0	0	3	lb	0	1	6,462	15,933
Ipecacuanha Root, B.D.	lb	0	1	3		—			lb	1	0	6,483	7,453
Jalap, BD.	lb	0	2	9		—			lb	0	6	41,500	3,724
Manna, flaky, BD.	lb	0	2	3		0	2	6	lb	0	3	16,570	13,493
Sicilian, BD.	lb	—				—							
Musk, China, BD.	oz	1	0	0		3	10	0	oz	6	0	1,990	2,389
Myrrh, East India, BD.	c	5	0	0		14	0	0	c	6	0	149	216
Turkey, BD.	c	2	0	0		11	10	0					
Nux Vomica, BD.	lb	0	8	0		0	9	0	lb	2	6	550	478
Opium, Turkey, BD.	lb	0	9	0		—			lb	1	0	45,589	40,784
Peppermint, Oil of, F. BD.	lb	0	12	0		0	13	0	lb	4	0	5,816	2,587
Quicksilver, BD.	lb	0	3	11		—			lb	0	1	328,556	338,643
Rhubarb, East India, BD.	lb	0	5	0		0	7	0	lb	1	0	16,745	22,517
Dutch, trimmed, D.P.	lb	0	8	0		0	9	0	F. lb	1	0	22,203	12,525
Russian, BD.	lb	0	7	6		0	8	6					
Saffron, French, BD.	lb	—				—			lb	1	0	3,322	4,416
Spanish	lb	1	10	0		—							
Sarsaparilla, Honduras, BD.	lb	0	1	0		0	1	9	lb	0	6	121,814	117,522
Lisbon, BD.	lb	0	2	0		—							
Scammony, Smyrna, D.P.	lb	—				—			lb	2	6	11,101	8,551
Aleppo	lb	0	18	0		1	0	0					
Senna, East India, BD.	lb	0	0	3		0	0	4	E.I. lb	0	6	86,580	110,409
Alexandria, D.P.	lb	0	1	6		0	1	8	Other sorts	0	6	59,044	63,766
Smyrna, D.P.	lb	0	1	0		0	1	3					
Tripoli, D.P.	lb	0	1	0		0	1	3					

‡§‡ BD. In Bond.—c. Cwt. - B. P. British Possessions.—F. Foreign.— D. P. Duty paid.

A TABLE OF MORTALITY FOR THE METROPOLIS,

Showing the Number of Deaths from all Causes, registered in the Four Months ending Dec. 184

Causes of Death.	Sept.—Dec. 1840.				Weekly Average, 1838.
	September.	October.	November.	December.	
Small-Pox	63	178	212	246	73
Measles	63	106	106	141	11
Scarlatina	117	215	129	94	29
Hooping Cough	38	76	64	125	40
Croup	14	26	34	37	7
Thrush	24	25	16	20	6
Diarrhœa	95	59	11	14	8
Dysentery	4	11	6	2	2
Cholera	18	5	1	1	.3
Influenza	1	1	3	13	1
Typhus	68	118	101	98	78
Erysipelas	11	33	30	39	8
Syphilis	1	2	..	1	1
Hydrophobia	..	..	..	..	.2
Total	517	855	713	831	265
Cephalitis	29	57	39	53	10
Hydrocephalus	115	168	130	133	34
Apoplexy	50	74	85	73	19
Paralysis	49	61	63	98	14
Convulsions	174	250	183	235	67
Epilepsy	9	14	16	24	4
Insanity	2	1	5	5	1
Delirium Tremens	4	8	7	6	1
Dis. of Brain, &c.	29	28	32	40	6
Total	461	661	560	667	156
Quinsey	6	7	3	6	2
Bronchitis	8	31	23	71	8
Pleurisy	5	8	10	7	2
Pneumonia	130	377	402	552	71
Hydrothorax	10	25	18	15	6
Asthma	32	88	82	222	28
Consumption	391	642	525	514	146
Dis. of Lungs, &c.	26	70	58	78	10
Total	608	1248	1124	1465	275
Pericarditis	3	4	3	2	.3
Aneurism	3	7	10	1	.5
Dis. of Heart, &c.	49	84	80	79	15
Total	55	95	93	82	16
Teething	88	92	71	62	15
Gastritis—Enteritis	108	87	70	50	17
Peritonitis	4	2	4	7	1
Tabes Mesenterica	19	16	23	16	3
Ascites	2	3	5	1	.4
Ulceration	1	9	7	6	1
Hernia	2	8	10	4	2
Colic or Ileus	2	5	4	8	4
Dis. of Stomach, &c.	22	35	20	26	4
Hepatitis	5	3	10	7	1
Jaundice	7	7	5	10	2
Dis. of Liver, &c.	36	36	28	30	7
Total	291	303	257	227	57

Causes of Death.	Sept.—Dec. 1840.				Weekly Average, 1838.
	September.	October.	November.	December.	
Nephritis	..	1	4	2	.5
Diabetes	..	3	2	1	.4
Stone	3	1	1	..	.4
Stricture	..	..	3	2	.6
Dis. of Kidneys, &c.	7	14	10	13	3
Total	10	19	20	18	5
Childbed	16	41	32	31	8
Ovarian Dropsy	1	..	2	..	.3
Dis. of Uterus, &c.	7	11	19	16	2
Total	24	52	53	47	10
Rheumatism	8	13	8	17	4
Dis. of Joints, &c.	8	9	9	20	4
Total	16	22	17	37	8
Ulcer	2	3	4	..	.4
Fistula	..	1	2	1	.4
Dis. of Skin, &c.	1	2	1	2	.4
Total	3	6	7	3	1
Inflammation	14	25	26	37	18
Hæmorrhage	5	13	16	13	4
Dropsy	113	174	140	169	34
Abscess	11	19	10	18	4
Mortification	15	26	11	22	4
Scrofula	6	14	10	3	1
Carcinoma	22	35	24	22	6
Tumor	7	5	7	5	1
Gout	3	5	3	2	1
Atrophy	27	29	30	22	4
Debility	51	101	86	101	12
Malformations	4	3	4	6	1
Sudden Deaths	29	57	51	78	12
Total	307	506	418	498	102
Old Age, or Natural Decay	157	329	259	324	79
Intemperance	3	3	3	3	.4
Privation	..	1	2	5	.6
Violent Deaths	57	93	82	118	25
Total	60	97	87	126	26
Causes not specified	3	23	16	18	13

Estimated Population, 1840.		September.	October.	November.	December.	Weekly Average, 1838.
West Districts,	308,920	339	592	540	638	156
North Districts,	414,458	461	786	644	802	172
Central Districts,	369,722	479	775	758	853	208
East Districts,	411,635	618	990	788	955	239
South Districts,	450,265	620	1073	890	1095	194
	1,955,000	2512	4216	3620	4343	1013

LATERAL CURVATURE.

To the Editor of the Medical Gazette.

SIR,

IN reply to Mr. Child's last communication, and in reference to division of the muscles of the back in spinal distortions, I beg leave to state that no very satisfactory result, or rather such as I could consider satisfactory, followed the operation in my case, although the mother of the patient thought him much improved. It is difficult to ascertain minor degrees of amendment, except by a series of casts, and these are not easily obtained. I ought to state, however, thet I had no opportunity of employing mechanical extension after the operation, as I proposed, and that I think division of the sacro-lumbalis was indicated in my case.

It is not a little singular that while accomplished anatomists and surgeons (*e. g.*, Malgaigne) are demonstrating theoretically the utter impossibility of treating successfully the more severe cases of lateral curvature, practitioners are continually bringing forward instances to the contrary. It is to be hoped that M. Guérin's forthcoming work will remove the uncertainty in which we are left by these conflicting statements.

I am, sir,
Your obedient servant.
T. LAYCOCK, M.D.

York, Jan. 4, 1841.

ON THE USE OF MERCURIAL PLASTER

("Emplâtre de Vigo.")

IN PREVENTING DEFOMITY AFTER SMALL-POX.

By M. CHOMEL.

A YOUNG girl is under M. Chomel, in the Hôtel Dieu, who has been vaccinated, but she says without effect. The variolous eruption, which is demiconfluent, was preceded by the ordinary symptoms. A mask, made with the plaster of Vigo, was applied to the face on the second day of the eruption. The patient tore it off within twenty-four hours, but, notwithstanding this, the result is very remarkable. On the neck, chest, and all the rest of the body, the variolous pustules were developed with all their distinguishing characters: opaque, umbilicated, and surrounded by a bright red areola. But on the face the course has been very different; instead of pustules we see acuminated vesicles, or solid papulæ. On some points where the plaster had not adhered, small pustules are perceived; where it had, we search for them in vain. It appears impossible, on the simple inspection of this patient, to state that mercury has not exercised a local action, specific and advantageous; for the patient will not be scarred, and will be speedily convalescent.

In another ward is a patient already convalescent, who has been submitted to the same mercurial treatment, and the desquamation has followed its ordinary course, except on the face, where scales have not formed. In another bed in the same ward is a woman five months and a half advanced in pregnancy, in whom the plaster has entirely averted the eruption from the face: small whitish papulæ supplying the place of the pustules. Desquamation has not taken place, except on the lips and eyelids, where some pustules appeared; but the mask of plaster did not extend to these parts. The treatment is well worthy of further trial.—*Bulletin Général de Therapeutique*, 15 *et* 30*Août*, 1840; and *Brit. and For. Med. Rev.*

BOOKS RECEIVED FOR REVIEW.

Dr. Robertson on Spinal Diseases.

Dr. Monro's Essays and Heads of Lectures.

Professor Traill's Medical Jurisprudence.

Mr. Wade's Practical Observations on the Pathology and Treatment of Strictures of the Urethra.

Dr. Labatt's Address to the Medical Practitioners of Ireland on the Subject of Vaccination.

Dr. Turner's Elements of Chemistry, Seventh Edition.

Mr. Webster on the Principles of Sound.

Dr. Sharkey's Inquiry into the Efficacy of Digitalis in the Treatment of Idiopathic Epilepsy.

METEOROLOGICAL JOURNAL.

Kept at EDMONTON, *Latitude* 51° 37' 32" *N.*
Longitude 0° 3 51" *W. of Greenwich.*

Dec.	THERMOMETER		BAROMETER	
Wednesday 30	from 19	to 35	30·27	to 30·15
Thursday . 31	31	42	29·80	29·91
Jan. 1841.				
Friday . . 1	32	43	29·88	29·85
Saturday . 2	31	41	30·01	29·85
Sunday . . 3	32	37	29·18	29·08
Monday . . 4	21	35	28·94	29·22
Tuesday . 5	24	33	29·34	29·44

Winds, West and North.

On the 30th, evening cloudy, with rain, otherwise clear; the 31st ult. generally clear; the 1st inst. general overcast; the 2d clear; the 3d morning cloudy, otherwise clear; the 4th, morning clear, otherwise cloudy, snowing frequently during the afternoon and evening; the 5th overcast, snowing nearly all the day.

A storm of thunder and vivid lightning passed over this place about 7 o'clock A.M. of the 3d, accompanied with heavy and large hail stones; the wind, which had been blowing in violent gusts two or three hours previously, ceased when the thunder storm commenced.

Rain fallen, ·215 of an inch.

CHARLES HENRY ADAMS.

WILSON & OGILVY, 57, Skinner Street, London.

THE

LONDON MEDICAL GAZETTE,

BEING A

WEEKLY JOURNAL

OF

Medicine and the Collateral Sciences.

FRIDAY, JANUARY 15, 1841.

LECTURES ON THE PRINCIPLES AND PRACTICE OF PHYSIC,

Delivered at King's College, London,

BY DR. WATSON.

LECTURE XVII.

Diseases of the Eye. Catarrhal ophthalmia. Purulent ophthalmia of Adults.

HAVING brought my observations on general pathology to a close, I next proceed to the consideration of individual diseases; and I shall take them up, one by one, in that anatomical order to which I adverted in the introductory lecture of this course. That is to say, I shall go *a capite ad calcem*: interpolating those disorders which, although they have a name, have as yet no ascertained local habitation, wherever it may seem most convenient to introduce them. I mentioned before one advantage, as it seems to me, of bringing together, in juxta-position, all the diseased conditions to which the same part, or the same neighbourhood, of the body is liable, namely, the facility thus afforded of comparing the phænomena by which they are characterized, and of discriminating one disorder from another. In taking the parts in succession from the head downwards, we adopt a sort of order, definite enough for the purpose of aiding the memory, and yet free from the trammels that belong to all attempts at arranging diseases according to their essential nature and affinities.

I propose then, in the first place, to speak of certain diseases of the organ of vision. Diseases of the eye occupy a sort of neutral ground, upon which the surgeon and the physician may both lawfully enter. For some of them there are no means of relief, but in manual operations of the most delicate kind. On the other hand, many of the internal parts of the eye require, when diseased, exactly the same species of general treatment which the physician adopts in diseases of *other* internal parts. We seek to change the condition of a small portion of the body, by remedies that act upon and through the system at large. My real and only motive, however, for beginning with a few of the numerous morbid states to which this little part is liable, is this:—that we find, in the eye, more satisfactory and plain illustrations of the *general* facts and doctrines of pathology, as I have been endeavouring to set them before you, than in any other single organ of the body. "Here (to use the words of Dr. Latham, in his little volume on *Clinical Medicine*—a book which I strongly recommend you to study)—here you see almost all diseases in miniature: and from the peculiar structure of the eye, you see them as through a glass; and you learn many of the little wonderful details in the nature of morbid processes, which, but for the observation of them in the eye, would not have been known at all."

"Within the small compass of the visual apparatus," says Mr. Lawrence, "we meet with a greater variety of *structures* than in any other part of the body. Indeed the eye, with its appendages, exhibits specimens of every one of the animal tissues. We find in it bone, cellular and adipous substance, and blood-vessels: mucous, fibrous, and serous membranes; the conjunctiva exemplifying the first; the sclerotica, the sheath of the optic nerve, and the lining of the orbit, the second; the surfaces containing the aqueous humour, the third: muscular, nervous, and glandular parts: common integument, and hairs. Besides these, it contains several tissues of peculiar nature, to which there is nothing strictly analogous in other parts."

The eye itself, taking it apart from its appendages, the spheroidal eye*ball* itself, is scarcely an inch in its longest diameter.

Yet it seldom happens that disease, of any kind, occupies the whole, even of this small space, at once. Inflammation, for example, is often confined to one of the tunics of the eye, external or internal; and when it affects more, it is usually in consequence of the extension of the inflammatory process, from some one texture in which it took its rise. You will not expect me to treat of the vast number of disorders to which the several parts of the eye are liable. I shall bring, I repeat, a few of them only under your notice; and I shall select those concerning which the physician is most frequently consulted; which every one, whatever branch of the profession he may follow, ought to be competent to treat; and, more particularly, which are calculated to elucidate other diseases, and, above all, other internal diseases, that are usually assigned to the care of the physician. With the anatomy and physiology of the organ, I may take for granted that you are already acquainted.

I will first briefly inquire into the inflammatory affections of what may be considered the mucous membrane of the eye, which, like other mucous membranes, forms a surface communicating with the external air. Some of these affections are very trifling: some are very severe.

There is a mild form of inflammation of the conjunctiva, which constitutes the most common disease of the eye to which adults are subject. It results, in most cases, from vicissitudes of temperature, or from certain conditions, or sudden variations, of the atmosphere. It is very apt to be excited by exposure to a stream or draft of air, especially in the night, and during sleep. It has a strong analogy – indeed it is the *same disease*, except in *situation* — with that moderate degree of inflammation, produced by the action of the same causes, in the mucous membrane of the nasal cavities, the throat, and the bronchi, which in common parlance we style a *cold* in the *head*, or in the *chest*, as the case may be: and accordingly the inflammation of the conjunctiva of which I speak is often called, by the unlearned, a *cold in the eye:* and the same analogy is expressed in its technical appellation: the cold in the head or chest is termed by nosologists a *catarrh;* and the *cold in the eye* of the vulgar, is with them, *catarrhal ophthalmia*. The suddenness (sometimes) of its accession, has procured for it also the denomination of a *blight* in the eye.

The term ophthalmia is at present used to denote inflammation of the eye *generally:* it conveniently expresses in one word what would otherwise require more. Formerly, when the diseases of the eye were not so well understood in this country as they are at present, almost all the inflammatory conditions to which that organ is subject were lumped together under the common appellation of ophthalmia, or *the* ophthalmia. That word now requires some epithet to distinguish the seat or the kind of inflammation that is meant.

It can scarcely be otherwise than interesting to mark the phænomena which occur in catarrhal ophthalmia, when we know that in its cause and nature, it is the same with inflammation of a similar surface, in parts which we cannot so well inspect as we can the conjunctiva. This membrane, as you know, lines the eyelids, and covers about the third-part of the globe of the eye anteriorly. The inflammation, in catarrhal ophthalmia, is confined to the conjunctiva and the meibomian follicles. Its leading symptoms are *redness* of the surface of the eye; *some pain* and uneasiness there; an increased *discharge* from the affected membrane and the follicles; and a *sticking together* of the *eyelashes and lids.*

The *redness* is worth notice, both in respect to its tint, and to the arrangement of the vessels in which it appears. It is *superficial;* and of a *bright scarlet* colour; and usually *irregular* or diffused in patches, some fasciculi of vessels being more distended than others. When, however, the inflammation is more intense, the whole surface, except that of the cornea, becomes of a scarlet red. The vessels of the conjunctiva, which are thus rendered visible by inflammation, anastomose continually with each other, and form a net-work; and they can be slipped and dragged about over the subjacent surface by moving the eyelids with the finger. Frequently some of the meshes of this net-work are filled up with little patches of extravasated blood; the eye is what is called blood-shot, or to speak learnedly, there is ecchymosis: and sometimes all distinction of separate vessels is nearly lost. In the commencement of the complaint the redness is confined to that part of the conjunctiva which lines the lids; and it afterwards advances gradually, from the angle where it is reflected over the eyeball, towards the cornea.

Now all these particulars are of consequence, since they are diagnostic of the seat of the disease; and to show this I must mention, by anticipation, the appearance and the arrangement of vessels that are observed when inflammation affects some of the textures that lie deeper than the conjunctiva, and especially the sclerotica. The sclerotic redness is seen *through* the conjunctiva: it is of quite a different *tint* from that of the conjunctiva; instead of shewing a *bright scarlet* colour, it is *pink*, or sometimes of a slight *violet* hue; the vessels are much *smaller* and *finer* than those belonging to the conjunctiva, like hairs; and they are *straight* also, and arranged regularly like the radii of a circle; they lie in the sclerotic round the cornea like what is called a glory by painters, or like a halo, or zone surrounding the central cornea; and they *cannot be made to shift their place* by any dragging of the lids. These are very important distinctions. They are such as are easily recognized when two eyes are examined in which the two membranes in question are separately inflamed and vascular; and they are still more palpable perhaps when both membranes are simultaneously inflamed, as they often are, in the same eye. Then, unless the conjunctiva is so universally red as to prevent our seeing the sclerotica through it, the contrast between the larger, more tortuous, scarlet, and reticular vessels of the conjunctiva, and the fine, straight, rose-coloured, radiating vessels of the sclerotic, is exceedingly striking: and those of the conjunctiva, which lie naked on the loose mucous membrane, admit of being slipped about over the fixed zone of vascularity which is presented by those of the fibrous tunic.

The pain that attends catarrhal ophthalmia is slight and trifling. At the outset there is generally some uneasiness when the eye is exposed to the light; but there is no intolerance of light when the disease is fairly developed. The patient complains rather of a sensation of stiffness and dryness, and feels as though there were some foreign body in the eye, between the globe and the lids, especially when the eye is moved; a grain of sand, or gravel, or a little fly. So exact is the resemblance of this feeling, that you can with difficulty persuade the patient that there is nothing of that sort in his eye. No doubt this sensation is produced by the inequality and roughness of the surface consequent upon the irregular distension of the vessels of the inflamed membrane; irritating the organ mechanically, just as a piece of dust would irritate it.

Now in this respect, again, there is a marked difference between conjunctivitis and sclerotitis. In the latter disease, the pain is much more severe, of a dull aching character, with a sense of tightness: the part inflamed is denser, and less yielding than the conjunctiva. The pain is attended also, frequently, by throbbing, and it is felt, even more severely perhaps, in the surrounding parts, than in the eye itself; in the brow, temples, and head. It is a very remarkable circumstance, too, that the pain is distinctly aggravated towards night; increasing in violence from the evening till after midnight, abating towards morning, and ceasing in a great measure during the day, to be again renewed in the evening. I am speaking now particularly of inflammation of the *sclerotica* produced by the same *causes* as give rise to catarrhal ophthalmia: of what is generally called *rheumatic* ophthalmia.

The increased discharge that takes place from the eye in catarrhal ophthalmia is *not* a discharge of *tears*. In the beginning of the complaint there is sometimes a slight degree of lacrymation. But this soon ceases, and the mucous secretion from the surface of the membrane is augmented in quantity, and changed in quality. At first it is somewhat thin, but it soon becomes thicker, and it is often puriform; *i. e.* opaque and yellow: sometimes it retains more exactly the characters of mucus, is transparent and viscid; so that the eye looks moist to a bystander, while to the patient it feels gummy. The puriform secretion is not, in general, in any great abundance. You may see it lying in the angle between the eye and the lower lid, by pulling them apart; or it makes itself visible at the corner of the eye, or between the eyelashes along the edges of the lids, which it glues together at night. Sometimes however the discharge is more copious, so as to approximate to what is observed in the less severe forms of another disease I shall presently mention; viz. *purulent* ophthalmia.

There is seldom much swelling of the conjunctiva. If there be any, it results from an effusion of serous fluid into the meshes of the cellular tissue that connects the membrane with the subjacent sclerotica: by which effusion the conjunctiva is partially raised and separated. This kind of effusion often goes to a very great extent in purulent ophthalmia, or in violent inflammation of the external membranes, as I shall shew you by and by.

So much, then, for the symptoms, and causes, of catarrhal ophthalmia. It is necessary that you should be familiarly acquainted with them; not so much because the complaint is very *serious* in its nature, but because it is *common;* because you are sure to be again and again consulted about it, and because it is of great importance to distinguish it from other forms of ophthalmia, in order to adopt the proper treatment. A mistake of diagnosis might lead to mischievous activity on the one hand; or to still more pernicious inertness on the other.

When the inflammation does not extend beyond the mucous membrane, it will run a certain course, and then, under favourable circumstances, subside. But if it be improperly treated, or if the patient cannot guard himself against a repetition of its exciting causes, it may continue for weeks, and harass him a good deal, and even produce such a change in the inflamed lids as may prove a source of permanent irritation, and of chronic disease of the cornea over which they sweep.

Treatment.—Active general remedies are scarcely ever necessary. The patient should observe the main particulars of the antiphlogistic regimen, and avoid exposure to drafts or currents of air, and to cold and moisture generally. When the external weather is inclement, he should remain in rooms of a uniform temperature. It will be right to purge him in the outset with calomel and jalap, or with calomel followed by a black dose.

If the system at large sympathizes with the local disease, it may become necessary to take blood from the arm, or to apply leeches; but neither of these measures are requisite, except the inflammation is unusually severe, or the disease has been neglected or mismanaged.

After the bowels have been thoroughly cleared by an active purgative or two, remedies which encourage moderate perspiration will be likely to forward the cure: such as warm diluent drinks: five grains of Dover's powder, and immersion of the feet in warm water, at bed-time; and saline draughts containing 2 or 3 drachms of the liquor ammoniæ acetatis, taken at intervals during the day.

But in this complaint *local* measures are of greater importance than those which are addressed to the general system: stimulating or astringent applications to the affected membrane itself. Almost all modern writers on diseases of the eye agree in this. Dr. Mackenzie, of Glasgow, states it as the result of his observation on Beer's practice in Vienna, and of his own subsequent experience, on an extensive scale, at the Glasgow Eye Infirmary, that "general remedies in this disease are inferior to local ones; that *violent* general remedies are worse than useless; and that a local stimulant treatment may almost entirely be relied on." Mr. Melin, in a report of ocular diseases at the General Hospital, Fort Pitt, states that he had treated nearly 300 cases, some of them severe, upon the same principle, without either local or general bleeding; and that he had satisfied himself of the efficacy of this plan of management. And Mr. Lawrence, who for ten years was one of the surgeons to the Ophthalmic Infirmary, in Moorfields, and who during that period had ample opportunities of studying *this* disease of the eye as well as others, says that it is one to which the use of strong astringents is more particularly applicable. In disorders that have a strong natural tendency to terminate in recovery, it is only by taking advantage of the conclusions derived from extensive observation that we can be quite sure of our ground; and when the same result is reached by different and independent observers, we may safely place confidence in their concurrent testimony.

Dr. Mackenzie and Mr. Melin both employ and recommend the same application; viz. a solution of the nitrate of silver in distilled water, in the proportion of four grains to the ounce. A large drop of this solution is to be applied to the membrane once or twice, or three times, in the course of the day. If the patient recline his head backwards, and the drop be placed in the hollow formed by the internal angle of the eye, it will be diffused over the globe upon the separation and subsequent winking of the lids. After a minute or two this causes a pricking or smarting sensation, which subsides in from ten to twenty minutes, and the eye then feels much easier than it did before the drop was applied. Dr. Mackenzie says that the feeling as if of sand in the eye, is uniformly relieved, and the inflammation abated by the use of this solution, which he speaks of as a remedy of sovereign utility in the puro-mucous inflammations of the conjunctiva. The eye continues easy, after its application, for five or six hours perhaps; and when the symptoms return, they are again to be met by the introduction of another drop. As the disease subsides the remedy gives less and less pain, till at last it is scarcely felt. He tells us that "he has sometimes alarmed other practitioners by proposing to drop upon the surface of an eye highly vascular, affected with a feeling as if broken pieces of glass were rolling under the eyelids, and evidently secreting puriform matter, a solution of lunar caustic; and that he has been not a little pleased and amazed at their surprise when, next day, they have found all the symptoms much abated by the use of this application." He declares also that the acetate of lead, and the sulphate of zinc, substances which are much used in what are called *collyria*, or *eye-washes*, are greatly inferior, as local applications, to the nitrate of silver, in this disease.

There is another expedient that requires to be attended to in these cases. When the eyelids are gummed together by the viscid discharge, much hurtful irritation is often produced by the attempts made by the patient to separate them. Now all this may be obviated by greasing their tarsal edges at bed-time with any mild ointment; the spermaceti ointment, or a bit of lard. There is no necessity, as I believe, in this form of disease, to use medicated or stimulating salves: the object is to prevent the mutual adhesion of the lids; and this is accomplished by simple grease.

Purulent Ophthalmia—is another disease of the conjunctiva; differing from catarrhal ophthalmia in degree, in the severity of its symptoms, in the danger which it implies to the sense of vision, and in its exciting causes. It takes its name from the profuse discharge of pus, or of altered mucus which cannot be distinguished from pus, that pours from the inflamed surface. There are three remarkable varieties of purulent ophthalmia; called respectively—1, purulent ophthalmia of newly born children; 2, purulent ophthalmia of adults, or Egyptian ophthalmia, or contagious ophthalmia; and 3, gonorrhœal ophthalmia.

The symptoms of the two last-mentioned varieties, especially in their severer forms, are so much the same, that it would involve us in mere repetition if I did not take them together. In truth it appears to me much the simpler and better mode to look upon purulent ophthalmia as one disease; and to specify, as we go on, the differences by which its several forms are characterized: and not to split it into three different diseases, and to give a separate description of each.

Although purulent ophthalmia is inflammation of the very same part that is inflamed in catarrhal ophthalmia, and differs from it chiefly in degree, it is a hideous complaint, either to suffer or to treat; on account of the rapid progress it frequently makes, and its destructive tendency. The inflammation is *greatly* more intense, the surface becomes, in the worst cases, highly vascular throughout. A copious discharge of thick, yellow, puriform matter speedily establishes itself: this flows out from between the swollen lids, and runs over the cheek, which it often excoriates. At the same time considerable effusion takes place into the cellular tissue that connects the sclerotica and the conjunctiva. You are aware that the conjunctiva extends over the whole anterior face of the globe; but that it adheres so much more closely to the cornea than to the sclerotica, that we might doubt at first whether it did not stop at its margin. This close and firm adhesion over the cornea, and the looser attachment to the sclerotica, give rise to a very singular phænomenon. The conjunctiva is raised to some distance from the subjacent sclerotica by the effusion that takes place between them; and it projects around the cornea in the shape of a large thick ring, leaving the cornea buried, as it were, in a pit: nay, sometimes the swollen and prominent membrane will lap over, so as nearly to exclude the cornea from our sight. The same kind of effusion takes place also, sometimes with great rapidity, into the cellular tissue connecting the conjunctiva with the palpebræ, producing great external tumefaction, and a livid red appearance of the eyelids, which project forwards in large convex masses, and often prevent our seeing the globe of the eye at all: the upper lid especially becoming hard and stiff, and completely overhanging the lower. This swelling from effusion into the subconjunctival tissue is of a pale red, fleshy colour, sometimes marked here and there with patches of extravasated blood. The appearance is called *chemosis*: not ecchymosis, as the similarity of the sound has led some erroneously to suppose, but chemosis. Ecchymosis is a barbarous term of modern fabrication, from εκχεω, effundo; and signifies an effusion, and by common consent among medical writers, an effusion of blood. χημωσις is a genuine Greek word, the root of which is χημα, hiatus; and it means a gap or hollow.

Now this puriform or purulent inflammation, so long as it is confined to that part of the membrane which lines the eyelid, is not of any serious importance; but it is prone to extend itself to the cornea, and the whole anterior surface of the eye, causing ulceration or sloughing of the cornea, either in consequence of the actual inflammation of that part, or in consequence of the pressure made upon and around it by the swelling of chemosis. Frequently, when the cornea remains visible, a furrow or trench of ulceration may be seen at its margin; sometimes forming a complete circle, sometimes portions of a circle, sometimes going quite through; and when this happens, or when the cornea bursts, from the effects of deeper-seated inflammation, the aqueous humour is evacuated, and the iris protrudes through the aperture. And even when these horrible consequences do not take place, the eye is often as effectually spoiled for the purposes of vision by an interstitial deposit between the laminæ of the cornea, rendering it opaque, and permanently excluding the passage of light to the retina.

And when neither of these lamentable effects of the inflammation are produced, it is apt to leave behind it a chronic and very troublesome condition of the membrane. The conjunctiva that lines the lids remains thickened and granular, and hard and rough, instead of regaining its natural smoothness and softness, and polish. And the consequence of this is a perpetual irritation of the surface of the cornea, by the mechanical friction of the rough and hard lid in opening and closing the eye, and in the various motions of the eyeball. The continuance of this irritation leads at length to haziness or opacity of the cornea, which becomes traversed also by visible red vessels. Chronic inflammation of its investing membrane is produced, and kept up.

The most severe forms of this disease are attended, at length, with a good deal of pain; doubtless because the inflammation penetrates to the deeper-seated textures of the organ. The pain then presents those characters which I mentioned before as belonging to certain inflammations of the sclerotica: *i. e.* it is pulsative; and sometimes sharp and lancinating, sometimes dull and aching; and it is intermittent, or, if constant, it is aggravated by paroxysms; the paroxysms coming on at night, and abating towards morning; and it is not confined to the eye itself, but extends to the parts around it. This circumorbital pain is characteristic of inflammation of the sclerotica and cornea, and of the internal tunics, the choroid and iris. When the eye is not visible, from the swelling, we may conclude that the inflammation is as yet confined to the *conjunctiva*, when the pain is only scalding or "sandy;" and that it has extended to the sclerotica and cornea when the pain is severe, throbbing, and paroxysmal. In the cases in which the latter kind of pain is felt, the cornea generally gives way; and sometimes this circumstance brings relief to the pain, and sometimes the pain continues to return after the bursting of the cornea. It is curious that with all this, there is seldom much intolerance of light manifested.

In the earlier stages of this malady, it is entirely local: the system at large is scarcely disturbed at all. But the constitution begins to sympathize and suffer when the local symptoms increase in severity: the pulse becomes frequent, and the tongue white, but there is seldom much thirst or fever; and when blood is drawn from a vein, it does not, in general, exhibit the buffy coat. A good deal of variety in these respects has been noticed however in different cases. Children appear to suffer more constitutional disturbance when labouring under purulent ophthalmia than adults. If there be not much fever, there is always much uneasiness and irritation, and the sleep is broken by the nocturnal accessions of pain.

Such being the general features and course of the disease, at least as it occurs in adults, or in patients beyond the period of infancy, we may next inquire into the circumstances under which it has been observed to occur.

Purulent ophthalmia has been ascertained to be a common disease in hot climates: in India, Persia, and Egypt. It was brought into England, from the latter country, by our troops in the beginning of the present century, after the celebrated struggle which there took place between our army and the French under Napoleon. In this way it got the name of the *Egyptian* ophthalmia. It naturally excited very great attention at that time, and it does not appear to have been accurately described before.

To give you some notion of its prevalence in certain places and at certain periods, and of its serious nature, I may state that it was ascertained, by returns made from the Military Hospitals at Chelsea and Kilmainham, that on the 1st of December, 1810, there were no less than 2317 soldiers a burden upon the public from blindness in consequence of ophthalmia; and that in this number those soldiers who had lost the sight of one eye only were not included.

Again, in the year 1804, within nine months, *i. e.* from April to December, nearly 400 cases of purulent ophthalmia occurred at the Royal Military Asylum; and within six years from that time, without including relapses, upwards of 900 cases had taken place in the same establishment.

You will find these statements in a paper in the third volume of the "*Transactions of a Society for the improvement of Medical and Chirurgical Knowledge*," by the late Sir Patrick Macgregor. Many of our best regiments were for a time crippled and rendered unfit for service by this disease; which they carried from Egypt to other foreign stations as well as to this country, especially to Sicily, Malta, and Gibraltar. Nor were the French troops less extensively affected by it. Assalini, who wrote an account of the ophthalmia of Egypt, states that two-thirds of the French army were labouring under it at one time. It occurs also, but fortunately not to such an extent, in civil life. It broke out some years ago, in a large boys' school in Yorkshire; and blindness of one or both eyes, or serious injury to sight, from opacity of the cornea, and other consequences, took place in nearly 20 cases.

You perceive, therefore, that this formidable complaint has been ascertained, within the last forty years, to have prevailed as an epidemic; attacking great numbers of persons living under the same circumstances, and having constant communication with each other. And one of the first questions that naturally arises in one's mind, is whether it is capable of being propagated or not from one person to another by *contagion*. Much difference of opinion has existed on this subject. For my own part I cannot imagine how any one can doubt its contagious properties.

I will give you a case or two, as related by Sir Patrick Macgregor, proving two very important facts; first, that the disease is capable of being excited in the eye of a person, previously healthy, by the direct application of the puriform discharge from an eye affected with this ophthalmia; and secondly, the very rapid operation of the poison so applied.

One of the nurses employed at the Military Asylum, while syringing the eye of a boy who had much purulent discharge, found that a considerable quantity of the matter had spurted into her right eye. This was at 4 o'clock in the afternoon: she felt little or no smarting at the time; but towards 9 o'clock the same evening, her right eye became red and somewhat painful, and when she awoke the next morning, the eyelids were swelled, *there was purulent discharge*, and she complained of pain in the eyeball. The usual remedies were begun in the morning, and she recovered in the space of three weeks or a month. The left eye (into which none of the matter had gone) remained free from disease.

A precisely similar accident happened on another occasion to another of the nurses, except that the matter spurted into her *left* eye, about nine in the morning, Sir P. Macgregor happened to be in the hospital at the time when the accident occurred. He desired the nurse to bathe her eye immediately with luke-warm water, and she did so for several minutes; but notwithstanding this early precaution, about seven o'clock in the evening the left eye began to itch to such a degree, that she could not refrain from rubbing it. When she awoke next morning the eye was considerably inflamed, the lids were swelled, and when she moved the eyeball she had a sensation as if some sand was lodged beneath the eyelid. In the course of the same day purulent fluid issued from the eye, and other symptoms followed which were similar to those of the children under her care. The disease subsided under the usual treatment in 14 days. In this case also the other eye remained sound.

Another of the nurses in the same institution did not come off so well. She was sponging, with warm water, the eyes of a boy suffering severely from purulent ophthalmia; and she inadvertently applied the sponge she was using to her right eye. This happened at 8 o'clock in the morning. She mentioned the circumstance to the other nurses, but she took no means to prevent infection. Between 3 and 4 o'clock of the afternoon of the same day, great itching of the right eye came on; and before she went to bed it was considerably inflamed. Next morning her eyelids were swollen, she complained of pain in moving them, and the whole anterior surface of the eyeball was much inflamed; and a purulent discharge began to trickle down the cheeks from the inner canthus. The symptoms increased in severity in spite of all the means employed to check them, and on the fourth day the eyeball burst. The sight of the eye was irrecoverably lost, and the inflammation continued for upwards of three months. The left eye did not suffer.

These were cases in which the poisonous matter was *accidentally* applied. But a similar application has been made *intentionally*, and by way of *experiment*, and *with the same results*. Dr. Guillié, of Paris, introduced the puriform secretion, which was furnished by some children affected with purulent ophthalmia, under the eyelids of four other children belonging to another institution; an institution for the blind. These four children were amaurotic, but the external surface of their eyes was healthy and entire. In each instance a regular attack of purulent ophthalmia followed the introduction of the matter.

Facts of this kind, I say, prove, beyond the possibility of question, that the disease may be propagated from a diseased to a healthy eye by actual contact of the puriform matter. Here we have not one case (which might be considered as an accidental coincidence), but several: the morbid secretion is applied to one eye only; the symptoms of inflammation commence, and the regular form of the disease is fully developed within a few hours after the first application of the pus; and that eye only is affected. It is impossible to get over evidence of this kind.

The only questions therefore that can be raised are, whether the disease is ever produced in any *other* way than by contagion; whether it can be occasioned through the medium of the atmosphere impregnated with the specific effluvia proceeding from the diseased part, without any actual contact of the pus in substance; and supposing that the complaint does not always result from contagion, how it is originally produced?

I ought to observe, that independently of such isolated examples of the direct communication of the complaint, by contact with the diseased matter, as I have just laid before you, the history and progress of ophthalmia, since it has been noticed in Europe, are very strongly indicative of its contagious nature. I have already stated that it was not known in Europe till the commencement of the present century—till after the Egyptian campaign, in fact. It is not alluded to by any of the authors on diseases of the eye who wrote previously to that period; although some of the Italian physicians and surgeons, and many of the Germans, had paid great attention to that class of diseases. It spread from Egypt both to France and to this country, and to other places in which detachments of the Egyptian force were subsequently stationed: in Sicily, to wit, and in Gibraltar and Malta. Whenever it has prevailed among our troops at home, *this* circumstance has been *uniformly observed:* that it first broke out in soldiers who had come from Egypt, or had been in communication with regiments that had been in Egypt. In all cases its origin could be traced to the introduction of fresh troops into the regiment or the barracks.

Again, the manner in which it spreads is exceedingly instructive on this point. It extends itself rapidly, when once introduced, in places where a considerable number of persons are collected together; especially under circumstances favourable to the propagation of contagious maladies; as among soldiers assembled in barracks, where many of the men live in the same apartments, and use the same towels; while the officers, who live in larger and better ventilated rooms, and apart from each other, generally escape. And the good effect, in checking the farther extension of the disease, of separating the healthy from the sick, and of confining every one to his own washing utensils, and clothes, and towels and sponges, leads to the same conclusion. Rust, a German author, mentions this striking fact in corroboration of what I have just been saying. The disease broke out in the town of Mayence. This place was garrisoned by Prussian and Austrian troops. The ophthalmia began to spread extensively among the Prussian soldiery; while the Austrians, who were stationed in separate barracks from the Prussians, in another quarter of the town, remained quite free from it.

Those persons who deny, or who doubt, the contagious nature of purulent ophthalmia, rest their opinions upon some such considerations as these. They hold, in the first place, that the peculiarities of the atmosphere, in Egypt, where the disease has been found so common, are *sufficient* in themselves to account for it. That the inhabitants of that country never dream of its being caused by contagion. Assalini, who saw the complaint raging in the French army, professes his belief that it did not arise or spread by contagion. He remarks that the atmospheric conditions which are known to occasion *catarrhal* affections, are very frequent and powerful in Egypt: the days are very hot, the nights chilly, and attended with heavy dews; and the eyes are perpetually exposed, in the day time, to a dazzling glare of light from the white sandy surface, while the air is full of floating particles of hot sand, which are raised from the ground by the slightest breeze. His opinion therefore, and that of others who saw the disease as it prevailed in that country, was, that it consisted simply of acute catarrhal inflammation of the conjunctiva; and that it affected those persons most who were most exposed to the exciting causes of such inflammation: the common soldiers, therefore, more frequently than the officers.

Other circumstances adduced by the disbelievers, or sceptics in respect to contagion, are that many who have intercourse with the sick escape the disease; and that when bodies of men, among whom purulent ophthalmia has been prevailing to a great extent, are broken up and dispersed, the complaint is not thereby disseminated, as they say it ought to be, supposing it to be communicable from one person to another; that, in fact, this dispersion, the disbanding of troops for instance, and sending them to their friends and families all over the country, is the surest way of stopping the disorder.

Again, many ineffectual attempts have been made to inoculate the eyes of animals with the matter of purulent ophthalmia. Müller, a German, with that care and industry for which the Germans are so remarkable, took matter from the eyes of patients labouring under purulent ophthalmia early in the morning, before they had washed them, collected it on a camel's hair pencil, and inserted it under both the lids of each eye, in a great number of animals, leaving the pencil there for a few seconds, and then pressing it so as to squeeze the matter out. He also smeared the pus copiously and repeatedly along the edges of the lids. He served in this way five cats, ten dogs, two rabbits, two squirrels, two blackbirds, a starling, a yellow-hammer, and a cock. And in none of them did the inoculation produce the slightest effect.

It is a sufficient answer to these *negative* experiments, however, that other persons were more successful in producing the disease in this manner. Vasani and Gräfe have both excited it repeatedly in dogs and cats, by the application to their eyes of matter taken from human patients. And I have already informed you of many instances in which the disease was generated in men by accidental, and even by intentional, inoculation. No amount of negative evidence can do away with positive testimony so often repeated.

And with respect to the other objections, and especially the *main* objection, that persons may associate and hold close intercourse with individuals labouring under purulent ophthalmia without contracting the disease; I would have you remark that this is no more than what continually happens in regard to diseases that are acknowledged on all hands to be contagious, and to have no other source at present, however they might have originated at first, *but* contagion: the small-pox for example. I think there is good reason for believing, from the facts which I have been relating, that purulent ophthalmia, like the small-pox, is capable of being communicated from one person to another, not only by positive contact, but by transmission of the specific poison somehow for a short distance through the air. But many persons exposed to the contagion of small-pox escape it altogether; and more persons still, perhaps, fail to be affected, though fully exposed, at one time, and yet readily accept the disease at another time, even when the exposure may seem much more slight than on previous occasions. Now what is true of the small-pox may be presumed to be likely, although perhaps in a different degree, of purulent ophthalmia.

As to the circumstance that the disbanding of a regiment infected with the disease prevents instead of favouring its dissemination, that circumstance is really no argument at all against our belief in its contagious nature. We shall see hereafter, that when fever patients are collected in numbers in distinct wards, or in fever hospitals, *that* disease is very apt to be communicated to the nurses and medical attendants of the sick; whereas when such patients are distributed here and there among others, in a *general* hospital, the disease is scarcely ever known to spread. In the one case the poison is *concentrated* and *effective*, in the other it is *diluted* and *harmless*.

Dr. Mackenzie indeed has come to the conclusion, from what he has himself observed, that the discharge in *catarrhal* ophthalmia, especially when it is distinctly puriform, if conveyed from the eyes of the patient to those of others by the fingers, or by towels, and so forth, is capable of exciting inflammation of the conjunctiva, still more severe, more distinctly puriform, and more dangerous, than was the original ophthalmia. And with respect to the disease which I have been speaking of as purulent ophthalmia, or Egyptian ophthalmia, this author calls it, *contagious* ophthalmia; he holds that the inflammation of the conjunctiva, whether in the mild or more severe form, may and often does originate from common atmospheric influences, but that when so caused it may be communicated from person to person, especially when it is attended with a puriform discharge.

And this is an opinion which, I think, is fully warranted by the facts which we are in possession of upon this subject. There is a strange reluctance, which I have never been able to account for, in some medical men, to admit of the operation of contagion, as a cause of disease. There are undoubtedly some difficulties belonging to the doctrine of contagion, and I hope in the progress of the course, and especially when I come to speak of fever, to give that subject the careful attention which its great importance demands; and to enable you to make up your minds respecting it. At present I will only remark, that there is nothing absurd, or unlikely, in the supposition, that diseases may first arise from some other source, and then become capable of spreading by contagion; and that in all cases, even when the contagious principle is most manifest, there seems to be something else required besides the presence of contagious matter; there must be a power of receiving it, a susceptibility of its influence, on the part of the person exposed to it: a predisposition which is less common in regard to some diseases than to others; but without the presence of which there is scarcely any complaint that can be so propagated.

At any rate I would desire to impress upon you the expedience and propriety of *acting*, whatever your doubts or your belief may be, *upon the safe side*. We are bound to proceed, in all questionable cases of this kind, upon the most unfavourable supposition. Very great discredit and loss of reputation have befallen practitioners who, having themselves no belief that a given complaint was contagious, have neglected those precautions which, under a contrary impression, they would have thought necessary. Perhaps they may have sometimes suffered unjustly: but you had better not commit yourselves, especially while you are young in years and in experience, by strong assertions of the noncontagiousness of any disease, the mode of propagation of which is at all questionable. And as for the disease that we are now concerned with, you will do well to act as though it were certainly contagious; whether you meet with it as a sporadic or as an epidemic complaint, whether it be severe in its symptoms, or mild. You should forbid the use of your patient's towels and washing vessels by other members of the family; you should avoid employing the same instruments or sponges to any sound eye which you have been using for one that is affected with this complaint; and you should take care to wash your own hands, after handling a diseased eye, before you apply your fingers to another that is yet, in this respect, healthy.

LECTURES
ON
MORTIFICATION,

Delivered at the Medical Theatre of St. George's Hospital.

By Sir Benjamin C. Brodie, Bart. F.R.S. &c.

Lecture III.—Dec. 12, 1840.

Destruction of parts by Caustics.

Parts may be destroyed by the application of various substances, which exercise a chemical action on the materials of which their organization is composed. We call these substances *caustics*, and sometimes *escharotics*. This is a subject of especial interest in practical surgery: and in considering it I shall not confine myself to the *modus operandi* of caustics, but I shall extend my observations to the modes of using them, and explain some of the principal occasions on which you may, in the treatment of diseases, have recourse to them with advantage. I have no scruple in doing this, as I am not restricted by the rules of a systematic course of lectures, and need have no object in view, except that of making these discourses as useful to you as possible.

I have said that caustics act chemically, destroying in this manner the organization of the parts to which they are applied. If there be any exception to this general rule, it is in the case of *arsenic*, in the operation of which there seems to be something peculiar. I make this observation, because it has appeared to me, that while other caustics have a manifest action on the dead body, it is not so with arsenic. I very much suspect that arsenic acts merely on the fluids, while ordinary caustics act on the fluids and solids also. However, I offer this to you as a conjecture, and as a matter deserving of further inquiry, and not as a well-established fact. All other caustics which I have made the subject of experiment produce a distinct alteration in the condition of the dead body, though different in appearance from what they produce on the living, in which they operate on the fluids as well as on the solids, and in which the blood moving in the small vessels conveys their influence beyond the surface to which they are actually applied.

A great variety of chemical agents may be employed as caustics. It would be an endless task for me to describe all of those with which I am myself acquainted; and if I were to do so, a multitude of others would be left unnoticed, of which I have no experience. I shall only speak of those which we are in the common habit of employing, and the right use of which will, if I am not mistaken, enable you to accomplish all that can be accomplished in this way.

There is some difference in the action of different caustics, some act slowly, others rapidly; some produce much pain, others comparatively little pain: the pain caused by some is very severe for a short time, by others less severe, but of longer duration: some destroy a part to a much greater extent than others: the slough made by one kind of caustic will separate much sooner than that made by another. The period occupied by the separation of the slough seems to depend on the quantity of surrounding inflammation. If the inflammation of the margin be considerable, the slough is soon thrown off; whereas, if it be trifling, it may remain attached for a long time. If the caustic be applied merely to granulations, the slough separates much sooner than if it be applied to the skin or to other parts of original structure.

There is no class of cases in which you will have such frequent occasion to apply caustic, as those of exuberant granulations, such as are commonly called *proud flesh*. In some cases, in which there is little disposition to form new skin, the granulations rising above the level of the skin in the neighbourhood, it is important that they should be destroyed. On these occasions we commonly use the nitrate of silver, and it is quite a sufficient caustic for this purpose. You rub the part with it pretty freely, and the next day the exuberant granulations have disappeared, partly by sloughing, and partly by absorption. There are, however, occasions on which you will find a great irregular mass of unhealthy granulations beyond what the nitrate of silver will easily destroy. Such granulations as those to which I now allude are frequently generated over an old carious surface of bone, and you will then find that the ointment which I am going to mention makes an excellent caustic application for them. It is a very old prescription, but not the worse on that account. The ointment consists of verdigris, sulphate of copper, nitric oxide of mercury, of each two drachms, oxymuriate of mercury one drachm, with as much hog's lard as is necessary to blend them together. This may be spread on lint, and one or two applications will be sufficient to destroy a very large mass of fungous granulations.

One mode of making an issue is by means of caustic, and for this purpose we generally employ caustic potash (potassa fusa), or strong nitric acid. The former may be rubbed on the part until it has penetrated through the skin, and that is enough. If you continue rubbing it afterwards it goes deeper than is necessary, and generally gives rise to considerable bleeding. This caustic continues to spread after you have ceased to apply it, and you must make an allowance for this when you use it, otherwise you make too large a slough. The concentrated nitric acid spreads a little after it has been applied, but not so much as the caustic potash. The nitric acid is applied by means of lint on the end of a probe dipped in the acid, and rubbed for several minutes on the surface. I have seen issues made by the nitrate of silver made into an ointment and laid upon the part. It makes a slough of the skin, and, as far as the mere issue is concerned, will do very well; but it is very slow in its action, and causes ten times the pain produced by other caustics.

When an issue is open you want to keep it so, while perhaps it has a tendency to heal; and there are other occasions on which something is required to prevent sores or the orifice of a sinus from healing. A man may have a small abscess by the side of the anus. If the orifice heals the matter collects within, and a large abscess is formed, which should be prevented if possible. In these cases the best thing that can be done is to touch the margin of the issue, or the orifice of the sinus, now and then with the caustic potash. It makes a slough which takes some time to come away, and the application of it once in ten days or a fortnight will answer that purpose. I have seen the nitrate of silver frequently used with the same intention; but in fact it promotes cicatrization, and heals the sore or the sinus, instead of keeping it open.

There is an occasion on which you will not unfrequently have occasion to apply caustic, and where it is very material indeed that it should be done in a careful and scientific manner. I refer to cases in which a person has been bitten by a rabid dog, or a dog supposed to be rabid. It is evident that in either case the treatment must be just the same. On these occasions it is better to excise the part thoroughly, and to take out a good deal of the surrounding parts. But it sometimes happens that this cannot be very easily accomplished. A person, for instance, is bitten in the palm of the hand, ; the dog's tooth penetrates into it, and it would be a very serious thing to cut out tendons, nerves, and every thing else drawn to the metacarpal bones. Or it may be that you had supposed that you had cut out the part completely, and yet find on examination that the tooth has penetrated further, where you cannot very easily follow it with the knife. On these and similar occasions, you can do nothing better than trust to the application of caustics. Mr. Youatt, the veterinary surgeon, who has had great dealings with rabid dogs, tells me that when he has been bitten he has always applied the nitrate of silver, and he is alive and well now: so that in his case this kind of caustic has answered the intended purpose. But, then, he applies it at the very instant when he is bitten; whereas very few of your patients have the nitrate of silver in their pocket, or could apply it if they had. The best caustic, I apprehend, to use on these occasions is the caustic potash; and for this reason; that it dissolves the parts with which it comes in contact, and that then the dissolved caustic penetrates still further, beyond the part to which if has been actually applied. If the tooth penetrate to the cellular membrane, some of the saliva may have gone into the cells beyond; and if you apply the nitrate of silver, or the nitric acid, these will coagulate the fluids and harden the solids, and they will diffuse themselves, like the caustic potash. A convenient way of applying the latter on these and some other occasions is this—melt some of the caustic potash in a silver or platina spoon, and when melted dip into it the blunt end of a probe, and it will come out with a varnish of the caustic upon it; dip it in again and again, until a button of caustic of sufficient size is formed upon it. By means of a probe thus armed you may carry the caustic into a narrow wound, so that you are sure it will penetrate wherever the dog's tooth has penetrated; and then, from the particular nature of the caustic, (as I have explained) you may be certain that it will penetrate still further, and as far as the saliva can have reached.

Caustics may often be used very advantageously for the purpose of distroying diseased lymphatic glands. A man has chronic inflammation and enlargement of the glands in the groin, forming a considerable tumor. The skin over them ulcerates, forming at last a large ill-conditioned ulcer, which will not heal. What is the reason of this? Because no ulcer will heal unless it has a healthy basis, and here the basis is a mass of diseased glands. These diseased glands may take a long time to recover themselves—not merely months, but one or two years, and as there are plenty of glands to spare there is no harm in destroying them. You may effect this by the caustic patash, but not very well; you want some kind of caustic which will lie in the substance of the diseased glands and destroy their inner structure as well as their outer surface. The form of caustic I am going to mention was used by the late Mr. Pearson, from whom I had the prescription. It consists of one ounce of crumb of bread, two drachms of oxymuriate of mercury, one drachm of red oxide of lead. These are to be mixed together, kneaded with the fingers, and formed into a sort of paste. The paste should be rolled into little conical troches, and these, if left to dry, become hard like bread seals. These troches may be stuck into the enlarged gland like pins into a pincushion. They produce no effect at first, but in the course of a little time they begin to act, and the patient knows this by the pain produced. This lasts for some hours, and, if a sufficient number of the troches be employed, the whole of the gland is at once destroyed. If any portion remains not destroyed it is easy to effect it by repeating the process. I do not know whether the red-lead answers any useful purpose; I suppose not, but I found it in the original prescription, and on all occasions, where I find a particular prescription to do just what is wanted, I am unwilling to alter it.

Caustic may be applied to various morbid growths; and I am inclined on the whole, when these can be easily destroyed by caustics, to use them in preference to the knife, and for these reasons:—*First*, the former are on the whole much less formidable to the patient; *secondly*, if I am not very much mistaken, there is less chance of any ill consequences from the application of caustic than from even a small operation with a knife. For example, you very seldom find an attack of erysipelas follow the use of caustic, certainly much less frequently than after the use of the knife. Again; the slightest wound in certain constitutions will be followed by that diffuse inflammation of the cellular membrane, terminating in gangrene, which I noticed in a former lecture. But I do not recollect that I ever saw the same thing to happen after the use of caustic. The cases, however, to which caustic are applicable, are only those in which the morbid growth is of small size, and placed quite superficially. Undoubtedly it would cause too great a shock to the constitution, and too much suffering to the patient, for him to have a morbid growth of very large size destroyed in this manner.

There is a very common kind of morbid growth; in the form of warts and condylomata, which occur in women about the pudenda, and in men on the glans penis and about the anus. These are very easily destroyed by caustic. The nitrate of silver will destroy warts on the glans penis very well, if they are of limited extent, but not when they are collected in large masses. In such cases as these strong nitric acid may be employed. Rub the warts with it, and repeat the application from time to time till the whole are destroyed. The following application will answer the purpose very well in cases where the warts are not very extensive—a drachm of muriatic acid, added to three drachms of muriatic tincture of iron. This destroys the warts very well, but not very rapidly. The application must be repeated every day for some time, till the warts shrivel, decay, and drop off. There is a very common escharotic, and a very useful one for warts, on the glans penis or pudenda, where they do not exist to a great extent — namely, equal parts of powdered savine and verdigris. This being sprinkled on the warts destroys them, partly by making them slough, and partly by promoting their absorption. Another excellent caustic on this, and some other occasions, is this: take half an ounce of strong nitric acid, add to it half a drachm of white oxide of arsenic. It makes a beautiful blue solution, consisting of the nitrate of arsenic dissolved in nitric acid. This may be applied to the warts by means of a probe armed with lint; and it has a double operation. The nitric acid acts immediately, and, when it has done acting, the slough contains a certain quantity of arsenic, which continues to operate afterwards. Having this double action you may suppose that it is a very efficient caustic.

On this occasion, as on many others, on which you use nitric acid, without care, you will be in danger of burning the neighbouring textures. A woman who has warts on the pudenda wishes to have them destroyed, but she has no desire that the skin in the neighbourhood should be burned. This, however, will happen, unless you take care to prevent it. If you use nitric acid you should have at hand a solution of the bicarbonate of potash, by applying which you may neutralise the acid as it flows beyond the surface on which it is intended to act, and stop its operation. I may observe here, once for all, that there are many occasions when it is necessary to use similar precautions. Indeed, almost always when you use a caustic it is prudent to have some counter-agent at hand to stop its action if it goes on a wrong part. Acids may be neutralised by alkalies; caustic potash may be neutralised by vinegar. If you are afraid of nitrate of silver burning the neighbouring parts, its action may be neutralised by common olive oil; a solution of the bicarbonate of potash will decompose chloride of zinc—and so with other caustics.

Caustic may be used with great advantage in many cases for destroying the congenital vascular tumors which we see so frequently in children—nævi, as they are sometimes termed.

There are small vascular spots, not exactly congenital, though they occur in early life, which present themselves on the face of children, and which not unfrequently are objects of some anxiety, especially in the higher classes of society, as they form rather ugly red specks on the face. On examining one of them with a lens you see one large vessel in the centre, and small branches radiating from it. These spots, in most instances, if let alone will disappear spontaneously. If however this does not happen, you may destroy them in the following manner. The principal vessel is near the surface. Touch it through the cuticle for an instant with strong nitric acid, and it will contract and become obliterated. This is best done by means of a pointed piece of glass, which they sell as a sort of toy under the name of a glass pen. It is in truth as bad a pen as possible, but it answers this purpose, and some other purposes in surgery, extremely well. If the acid flows over the cheek you may neutralise it by a little bicarbonate of potash. But this will not destroy these vascular stars in every instance: and there is another and a still more certain method of proceeding. Puncture the principal vessel, from which the others radiate, with a lancet, and then introduce into the puncture, merely for a single instant, a very fine piece, scraped like a pencil, so as to have a sharp point of the caustic potash. Touch it for a moment only: that will be quite sufficient. But even after so slight an application, you will see that the caustic has also burned the margin of the skin, and unless you adopt other measures a trifling mark will be left. For this nothing is required but the application of a small piece of lint soaked in vinegar.

There are some congenital nævi which are altogether cutaneous. There is a very intricate plexus of little vessels filled with scarlet blood in the skin, which being elevated above the surface of the surrounding skin assumes an appearance which may be compared to that of a raspberry. If a nævus of this kind be of large size it must be removed by the knife or by a ligature, but if it be small you may destroy it very well with caustic. You should not employ the caustic potash, for that would produce bleeding, but rather have recourse to nitric acid, which destroys the nævus sufficiently, while at the same time it coagulates the blood in the small vessels, rendering the nævus more solid than it was before. With a bit of stick, or a probe armed with lint, and dipped in the strong nitric acid, paint the surface of the nævus, taking care that you include the whole, but that you do not burn the neighbouring parts. This makes a slough of the surface of the nævus, and destroys it at the same time that it coagulates the blood in the small vessels below, and thus renders them impervious. But, as I stated, just now this method is applicable only where the nævi are of small size.

There are subcutaneous nævi formed by vascular tumors in the texture *under* the skin, and not *in* the skin itself. These put on a different appearance from the cutaneous nævi before mentioned. The blood here is seen not of a scarlet, but of a purple colour, because the skin lies over it. These may be destroyed by caustic when they are of small size; and even when they are of large size, if it be a great object to avoid the scar which must exist after the removal of them by the knife or by ligature. These vascular nævi have sometimes been cured by vaccination. Half a dozen punctures have been made with a lancet armed with vaccine lymph. The pustules being crowded together in the nævus, a good deal of inflammation has ensued, with some degree of sloughing, and altogether the nævus has been cured. But you cannot depend on this method—at least so I am informed by those who have practised it, for I have not tried it much myself. But you may on the same principles very easily cure a nævus of this kind by caustic. For this purpose I have a very narrow lancet, perhaps about the eighth of an inch in width: I introduce it into the middle of the nævus, and move it in different directions, so as to cut to pieces, as it were, its vascular structure. I then have a probe armed by dipping the round end into the nitrate of silver melted in a platina spoon. This is to be introduced into the puncture made by the narrow lancet, and moved about, so that wherever the lancet has divided the bloodvessels this may penetrate. It causes inflammation and sloughing, at the same time obliterating the vessels beyond the margin of the slough. When the slough is separated there is a slight discharge of pus for a few days, and if the tumor be of small size you will find that it is cured; but if it be large the application must be repeated. I have used this on several occasions with great advantage, especially when the tumor has been on the face, where it was a great object not to destroy the skin. If you remove one of these tumors either by the knife or by ligature, you must in either case leave a large cicatrix. But by applying the caustic in the way which I have mentioned you save the skin that lies above it. I was last year called to see a little child that had one of these subcutaneous nævi at the end of the nose, which gave it a very ugly appearance. A good part of the alæ of the nose was involved in the tumor, and to have cut it out would have disfigured the child for life. I treated it according to the method which I have just explained. Several operations were required, but they succeeded perfectly; the child is quite cured of the nævus, and I will not say that you see no mark at the end of the nose, but there is so little, that, unless your attention were called to it, you would not know that any thing had happened. I have destroyed an extensive nævus covering a very large portion of the face in the same manner, there being very little or no scar afterwards.

There is another class of cases which may be very conveniently treated with caustic, and in general much better than with the knife. I mean those tumors which I have been in the habit of calling half malignant, and which occur on the face chiefly of elderly people. A man has a soft tumor upon the face, covered by a smooth skin, and not exactly a wart. On cutting into it you find it consists of a brown solid substance, not very highly organised. A tumor of this kind may remain on the face unaltered for years, and then when the patient gets old it may begin to ulcerate. The ulcer spreads slowly but constantly, and if it be left alone it may destroy the whole of the cheek, the bones of the face, and ultimately the patient's life; but it may take some years torun this course. So far these tumors in the face, and these ulcers, are to be considered as malignant. Nevertheless they are not like fungus hæmatodes or cancer, and for this reason: that the disease is entirely local. It does not affect the lymphatic glands, nor do similar tumors appear in other parts of the body. I have generally been in the habit of destroying these tumors with caustic, and when they are of small size I prefer caustic to the knife, for the reasons I have formerly mentioned. If a patient applies to you with one of these tumors as large as a pea or a horse-bean, not ulcerated, but beginning to increase in size, you may proceed in the following manner. First, make a crucial incision through the substance of the tumor with a lancet. Then, as soon as the hæmorrhage has ceased, apply the caustic potash in the incision. You may destroy the tumor if you please by letting the caustic act on the skin without using a lancet, but its destruction is much more easily accomplished in the manner which I have suggested. One application is generally sufficient; the slough comes away, and the sore heals. Perhaps it will be asked—Is there not this objection to the use of caustic; namely, that some time is necessary for the slough to come away—then a further time for the healing of the wound? and does not all this make the process of cure more tedious than it would be if the knife were used instead? The fact is, that a wound always heals much more readily after the application of caustic, than after the use of the knife. Take two cases—if you destroy one tumor of a given size by the knife, and then the other, supposed to be of the same size, by caustic, in spite of the time occupied by the separation of the slough, the sore in the former case will be healed sooner than that in the latter.

If the tumor be ulcerated, this is favourable rather than otherwise to the use of the caustic, because it saves the trouble of dividing the part with a lancet. When, however, the tumor has been of long standing, and has produced an extensive ulceration, the caustic potash will not well answer the purpose. There will be so much bleeding from the large surface that the caustic will expend its action on the blood, and will produce but little effect on the disease. You may then destroy the tumor with nitric acid, but the best applications, according to my experience, are the chloride of zinc or arsenic. There is, however, one very serious objection to arsenical caustics applied to a large surface; the arsenic is sometimes absorbed, producing severe constitutional symptoms. There was in former times a Miss Plunkett, a quack, who pretended to cure cancer, and it was known afterwards that her secret consisted in the application of arsenical caustics. An old medical practitioner, whom I knew in the early part of my professional life, informed me that it had fallen to his lot to see many of Miss Plunkett's patients, and that after the application of her caustics many of them died, from what seemed to be inflammation of the bowels. It is indeed notorious that the topical application of caustic to a great extent is very likely to produce the same poisonous effects as arise from an absorption of arsenic from the alimentary canal. The chloride of zinc acts merely locally; it is not absorbed into the constitution, and its use is not attended with any constitutional disturbance, nor productive of the smallest danger. I generally use the chloride of zinc by mixing it with an equal quantity of flour. It deliquesces from the moisture of the atmosphere, or you may add a little water to make it into a paste, which is to be spread on lint. If you want a deep slough spread the paste thick; if a thin one, spread it as thin as you please. The depth of the slough depends on the thickness of the paste, and the thicker it is the longer the action of it continues. The application of the chloride gives the patient a good deal of pain, which you must make him endure as well as you can by giving him opium. Some patients suffer much more than others; some will not require any opium at all, others will require it in great abundance; but when the action of the caustic has ceased there is an end to the pain, and the slough comes away in a few days. If the ulcerated surface be of large size, and the disease of much depth, a second application may be required. When the disease is situated over a bone, I generally like to procure a thin exfoliation of the latter, and the caustic accomplishes this very well, acting on the bone, but not to any great depth. The exfoliation takes place in a few weeks, and when the thin layer of dead bone has come away, healthy granulations are seen beneath. Sometimes, after having destroyed a great part of an ulcerated tumor with chloride of zinc, a small portion of it may be left here and there, to which you may apply the caustic potash, or or solution of arsenic in nitric acid. This solution of arsenic, or any other preparation of arsenic, may be applied to a small surface very safely. Observe that what I object to is its application to a very large surface.

Ulcerated tumors, similar to those which occur on the face, are sometimes met with on the scalp, and these too may be destroyed with caustic. You must, however, apply it in these cases with great caution, and for this reason—if you destroy at once a large piece of the pericranium, the destruction of it is likely to produce a separation of the dura mater from inside the bone. A case of this kind which I saw long ago made a great impression on my mind. A surgeon applied the caustic potash to the scalp with a view to make an ssue in a man's head, who was labouring under a headache, and nothing else. He made a slough down the bone, and exposed a piece of the occiput as large as half a crown, or larger. The patient was soon seized with a set of strange symptoms, and died. It was found that the dura mater had become detached from the inside of the bone just opposite the part where the pericranium was destroyed on the outside; and it was clear that the sloughing of the dura mater was the cause of the man's death. I mention this case to shew that you must be cautious in the use of caustic when you apply it to the scalp; but you may apply it in that situation, nevertheless, if you proceed in a prudent manner. I had lately a very successful case of one of these half malignant tumors of the scalp, which was much ulcerated, and had been going on for some years. I applied caustic to the different parts in succession, not making a fresh application until the slough made by the former one had come away. By proceeding in this manner the bone was not killed, except a very thin layer on the surface, and the patient was cured.

You may with proper precaution apply caustics to parts situated internally, even to the inside of the mouth, and to the inside of the female urethra. In that disease which we call *epulis*, a red tumor that looks like the gum, and which becomes connected with it, (though I believe that it really has its origin in one of the alveoli,) you may use caustics with great advantage. It is in vain to destroy the outer part of such a tumor, that is, the part connected with the gum, unless you also destroy the inner part where it originates in the alveolar process also; and from the surgeon not being aware of this circumstance, I have in several instances known repeated operations with the knife, as well as the application of hot iron, and caustics fail. The caustic which I find in general to be most convenient in these particular cases, is the caustic potash. You must fix it at a right angle to the end of a pair of dressing forceps, and secure it well by tying thread round it. The caustic should be scraped small enough to enter the alveolus, the teeth having been previously removed. Having thus destroyed the disease where it originated, you may apply the caustic to that portion which is outside, and connected with the gum. But you will say that it will burn the tongue or the cheek; and so it will, if you are not careful. You must let your assistant hold open the cheek, and while you apply the caustic he must have at hand a brush dipped in vinegar, which he is to apply whenever the caustic spreads beyond where it ought to be applied. I do not recommend this kind of treatment in the case of a large *epulis*, in which it will probably be necessary to take out a portion of the jaw; but it is perfectly applicable to many cases in the early stage of the disease. With a somewhat similar precaution you may apply caustic to destroy the vascular excrescence, to which I have before referred, of the female urethra—a disease first described by Sir Charles Clarke, and of which you will find some account also in my lectures on Diseases of the Urinary Organs. For these cases you should be provided with a silver tube or shield closed at one end, and open on one side. Introduce this into the female urethra, so that the vascular fungus may project into the open side of the tube, and there apply the caustic. Here also you must trust to your assistant dabbing the neighbouring parts with some liquid which will act as an antidote to the caustic; a solution of bicarbonate of potash if you use the nitric acid, or vinegar if you use the caustic potash. In general, in these cases, it is better before you use the caustic to remove as much of the excrescence as you can with a pair of scissors.

I have spoken of the application of caustics to some cases of what I have called half malignant disease: but occasionally they may be employed in cases of true malignant disease: such as scirrhus and fungus hæmatodes. If one of these tumors is of large size it is better to use the knife; in fact you cannot remove it otherwise. But there are instances of smaller tumors in which you may use caustic with great advantage. I will give you an example. A lady consulted me concerning a scirrhous tumor of the breast. The tumor was very small, but there was a scirrhous gland in the axilla, and where there is one scirrhous gland you may be nearly certain that there are several others, though you cannot perceive them through the skin. I did not therefore recommend an operation. She came to town a year afterwards; the tumor had ulcerated, and there was severe and indeed almost intolerable pain. I applied to the ulcerated surface of the tumor a paste of flour with the chloride of zinc. The tumor was apparently destroyed, and the sore cicatrized. She continued well for a considerable time. Another tumor then shewed itself in the neighbourhood of the cicatrix, which was also attended with excessive pain, and that was destroyed in the same manner, as was a third tumor that appeared afterwards. By this treatment her life was prolonged a full year and a half; and during this time she was in a state not of misery, but of comparative comfort, being generally free from pain. She died at last of effusion of fluid into the chest.

A lady, whom I attended last winter, had a fungous growth over the head of the tibia. It had all the appearance of malignant disease, was of considerable size, and was partly ulcerated. There had been a tumor there before, and her country surgeon had removed it, but the disease had returned. I removed it a second time with the knife, and, as far as I could see, I removed not only the diseased structure, but the parts beyond to a considerable extent. The wound appeared quite healthy, and went on healing favourably. Just, however, as it was healed, and when the patient had fixed the day for going out of town, there appeared on the margin of the wound, where there had been nothing before, a tubercle, which seemed to be precisely similar to what the other tumor had been in its origin. I destroyed this tubercle with caustic, and the sore thus made healed. A secondand a third appeared, which were also destroyed in the same manner. No others have since shewn themselves, and I cannot but entertain some hopes that the disease is really eradicated.

I must not recommend you to use the chloride of zinc without giving you this caution respecting it. Never apply it except where there is an ulcerated surface. If you apply it to the skin, you must first put on a blister to remove the cutis, as otherwise it will scarcely act at all. But even when the cuticle is removed, it will not act for the first twenty-four hours; and it will then begin to produce intolerable pain, which will continue for four or five days. When the tumor is covered with skin, you must use the caustic potash, or nitric acid, first; and when the superficial slough has come away, if the further use of caustic is indicated, the chloride of zinc may be had recourse to.

ON PHLEBITIS OF THE CEREBRAL SINUSES,

AS A RESULT OF PURULENT OTORRHŒA*.

By James Bruce, M.D., Liverpool,
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[*For the Medical Gazette.*]

Purulent otorrhœa is sometimes the result of an acute inflammation of the middle ear, but is more frequently observed as one of the sequelæ of variola and scarlatina in children of a strumous constitution. It is likewise observed about the critical period of fevers of the typhoid type, where the cerebral symptoms have been prominent during the course of the disease; but in such cases, I have some reason to doubt whether the acute symptoms, which follow the suppression of a chronic otorrhœa, are not often confounded with those occurring during the advanced stages of typhus.

The discharge commonly takes place from the external meatus, by an ulcerated aperture in the membrana tympani; it is liable to vary in quantity, and its physical qualities are materially influenced by derangement of the digestive functions. When neglected, or badly treated, the discharge increases in quantity, becomes fœtid and sanious, and communicates a brownish or violet tinge to silver instruments: this peculiar change in the character of the secretion constitutes the principal distinction between chronic otorrhœa and internal otitis, and is supposed to afford a certain indication of ulceration of the mucous membrane of the middle ear. When the inflammation extends from the mucous membrane of the cavity of the tympanum to the subjacent cellular tissue and periosteum, it speedily reaches the bony parietes, and the ossicular auditus are usually expelled, together with small quantities of osseous debris. Itard* observes that the ossicula may remain for some time in the cavity of the tympanum, after being detached from their situation, owing to the small size of the opening in the membrane; and while thus detained they become incrusted with matter; their expulsion becoming difficult, or next to impossible, till the whole of the membrana tympani is destroyed. The mastoid cells, from the delicacy of their structure, are generally attacked by the inflammation at an early period of the disease: disorganization proceeds rapidly in this situation, and an abscess frequently forms in the integuments covering the mastoid process. When the abscess bursts externally, a communication is sometimes established between the fistulous opening and the cavity of the ear; whilst, in other cases, instead of opening, the abscess allows its contents to become infiltrated with the subjacent cellular tissue, and to penetrate between the muscles of the neck as far as the theca of the spinal cord†. The whole of the petrous portion of the temporal bone is liable to carious disorganization during the course of a chronic otorrhœa; but all parts are not affected by it in an equal degree. According to Lallemand, it most commonly attacks the part of the petrous body containing the semi-circular canals: it has often also its seat in the partition marked by the groove for the lateral sinus, and sometimes makes its way into the cranium, under the tentorium cerebelli, by the aqueduct of the cochlea. In a case which occurred in the Glasgow Fever Hospital, under the care of my friend Dr. A. Anderson, the upper half of the petrous body, as far as the base of the cranium, was extensively carious, and of a dirty-grey colour; it was almost completely detached from the squamous portion of the bone, and, when the concha and integuments were removed, it was seen through a carious aperture above the external meatus.

The discharge from the ear is liable to suppression from various causes. This may depend upon the increased viscidity of the secretion, or may be occasioned by the changes which take place at puberty and during pregnancy; and also by pathological changes in other organs, giving rise to discharges which appear to become vicarious of the otorrhœa. Lallemand* has remarked the alternation of the purulent discharge with attacks of rheumatism, catarrhus vesicæ, and leucorrhœa.

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* Read before the Liverpool Medical Society, December 24, 1840.

* Traité sur les Mal. de l'Oreille, t. i. p. 208.

† Pilcher on Structure and Diseases of the Ear, p. 198.

The most frequent and dangerous complication of purulent otorrhœa is that which arises from metastasis of the inflammation to the brain or its membranes. It is usually preceded by cessation of the discharge from the ear, and the pain, originally confined to that organ, gives place to a severe general headache; fever, stupor, delirium, and symptoms of meningitis, supervene, and the patient may die suddenly in convulsions, without any appreciable traces of morbid action being discovered in the brain or its meninges. In cases of longer standing, the substance of the brain is sometimes found softened in the vicinity of the temporal bone; pus may have been effused between the layers of the arachnoid; or an abscess formed in the substance of the hemispheres, not unfrequently in that opposite to the affected ear—a circumstance which proves that in such cases the inflammation is transferred to the brain by metastasis, and not by continuity of tissue.

When the caries of the temporal bone has extended to the cavity of the cranium, the dura mater and arachnoid, and sometimes the brain itself, are attacked by inflammation; the dura mater becomes partially detached, and a small quantity of puriform matter is usually deposited between it and the diseased bone. In some rare instances the carious opening in the petrous body has become the channel of communication between the cavity of the tympanum and an abscess in the corresponding lobe of the brain; whilst in other cases, more recently observed, the sinuses of the dura mater have been found extensively inflamed, and their cavities filled with pus and false membrane: death evidently resulting from the formation of secondary abscesses in the lungs, and the deposition of pus and lymph in the pleural cavities.

I have thus briefly passed in review the series of pathological changes that usually take place during the progress of a purulent otorrhœa. With the exception of those last enumerated, the anatomical characters of the disease were well understood and described by Morgagni*; but sensible, as that distinguished pathologist undoubtedly was, of the manner in which the inflammatory action is extended from the ear to the brain, he entertained the singular idea that the pus secreted in the ear found its way into the cranium, and that its passage into the skull was favoured by the position of the patient's head, as well as by the carious openings in the temporal bone. Although observation has abundantly disproved the hypothesis of Morgagni, the question relating to the organ primarily affected in co-existing suppuration of the ear and the brain, has given rise to much discussion. M. Itard†, in his excellent monograph on diseases of the ear, has adopted the opinion originally maintained by Laubius, that purulent otorrhœa is in many cases merely symptomatic of disease in the brain. He believes that a primitive cerebral otorrhœa exists whenever suppuration takes place within the cranium, and penetrates into the ear by the carious openings in the temporal bone, or by the natural foramina; or, in other words, he considers the otorrhœa, in many instances, as the critical termination of an encephalitis. M. Itard has adduced several ingenious arguments in support of this opinion, but they appear to me to be completely overturned by the reasoning of Lallemand‡, who has almost succeeded in demonstrating that the lesion of the ear invariably precedes that of the brain. It would occupy too much of our time on the present occasion to examine this question in detail; but I may be permitted to observe, that the argument deduced by Itard from the anatomical position of the temporal bone at the base of the cranium, is perhaps the most conclusive that could have been advanced against his own hypothesis. Lallemand naturally inquires why the purulent matter, presuming it to possess corrosive properties, never effects its escape through any other bone besides the temporal, although there are some which occupy a lower position in the cranium, and which are thinner and less compact in their structure. What is the cause of this predilection for the temporal bone? Are we not justified in ascribing it to a primary disease of the ear, which recognizes, as one of its most frequent and dangerous complications, a carious condition of the temporal bone?

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* Recherches Anat. Pathol. sur l'Encéphale, lett. iv. ob. xvii.

* Morgagni, de Sed. et Caus. Morb., Epist. xiv. obs. 3-5.

† Itard, t. i. p. 218.

‡ Lallemand sur l'Encéphale, lett. iv. No. 30.

Another argument, which has been overlooked by this able pathologist, might be deduced from the appearance of the carious openings on the cranial aspect of the bone. Where the disease has attacked several parts in succession, the patient generally dies before the process of perforation is completed in them all, and the caries can thus be observed in various stages of its progress. I lately witnessed a case of this description, where the patient died in consequence of a perforation of the posterior wall of the petrous body; in another point on its superior surface, where the disease was less advanced, the bone was slightly discoloured, thin, and diaphanous, evidently shewing that the caries had commenced in the ear, and that the destruction of this bony lamella was all that was wanting to complete the communication between the cavities of the ear and the cranium.

In the foregoing pages I have endeavoured to give a rapid sketch of the morbid anatomy of the middle ear, and I have also briefly adverted to those lesions of adjoining structures most commonly observed in connection with long-continued disease of that organ. There is still another complication of purulent otorrhœa, to which I have casually alluded, and which appears to have been almost entirely neglected by writers on diseases of the ear. The complication to which I allude is inflammation of the cerebral sinuses. That these vessels should occasionally become affected during the carious disorganization of the temporal bone, we might almost have concluded *à priori* from their anatomical relations to the petrous body. When we reflect on the relation of the petrosal sinuses to the superior angle of the bone; when we see the lateral sinus lodged in a deep sulcus on its posterior aspect, and separated from the mastoid cells and cavity of the tympanum only by a thin osseous partition; and when we observe how invariably the dura mater becomes inflamed, either from sympathy with disease of the ear, or extension of the carious disorganization to the brain, we are at a loss to conceive how this lesion of the sinuses should have been so rarely described as one of the morbid complications of purulent otorrhœa. I attribute this, in some measure, to the carelessness with which our dissections are usually conducted: we are too apt to be influenced in our examination of diseased structures by our pathological tenets, and our investigations are either limited to the organ in which disease is presumed to exist, or terminated by the discovery of any single lesion sufficient to account for death. Even our best pathological writers are too often guilty of this partial mode of investigation. Kramer justly reproaches Abercrombie with having omitted, in the history of his cases of cerebral disease consequent upon otorrhœa, the indispensable local examination of the affected ear; and likewise, with having paid little and quite inadequate attention to that organ at the post-mortem examination. Within the last few years I have witnessed three cases of inflammation of the sinuses in conjunction with disease of the ear; and in confirmation of the opinion I have just expressed, it is worthy of notice, that in the last of these cases this remarkable lesion was not at first detected, although the temporal bone was carious, and the external wall of the lateral sinus slightly eroded. My attention was particularly directed to this singular affection by the following case, which occurred in the Glasgow Royal Infirmary during the time I was house-surgeon to that institution.

Case I.—John Britton, æt. 9, was admitted on Tuesday, March 1, 1837, for an immense abscess, occupying nearly the whole of the left side of the head. The abscess extended upwards as far as the vertex, and involved the whole of the integuments of the left side of the cranium, from the occipital tuberosity to within an inch of the external angle of the orbit. It formed a considerable prominence laterally, and fluctuation was distinct every where except in the immediate vicinity of the mastoid process, where the swollen parts were firm, of purplish colour, and acutely painful on pressure. Left side of face was greatly swollen, and there was complete closure of the eye, from the œdematous condition of the eyelids. The pupil was of natural appearance, and sensible to light. The face appeared sómewhat distorted, but it was difficult to determine whether this depended on the partial œdema, or on paralysis of the facial nerve. The patient complained much of his head, and seemed unusually drowsy, and inclined to dose. He generally lay in a state bordering on stupor, and was extremely fretful and peevish when roused, although sensible when spoken to. He sometimes got up out of bed without assistance during an intense exacerbation of headache, and seated himself by the fireside, moaning loudly, and pressing his hands against his forehead. His pulse was 120, weak and fluttering. Breathing seemed slightly oppressed, but he never complained of his chest. The abscess was punctured above the ear, and more than twelve ounces of thick fœtid pus were evacuated. He felt greatly relieved after the abscess was opened, and the œdema of the eyelids almost entirely disappeared. The abscess continued to discharge freely. His appetite, which had been voracious when he entered the Infirmary, now became impaired. He remained in the same lethargic state, constantly moaning, yet quite sensible when roused, till the Friday evening, when delirium supervened, and his left forearm and leg became affected, with rapid convulsive motions, bearing a close resemblance to a paroxysm of chorea. This convulsive agitation of the left side of the body came on repeatedly during the night, and each paroxysm lasted about ten minutes. The patient died next morning at 6 A.M.

The parents of the boy, who were unusually intelligent for persons in their condition of life, informed me that when about four years of age he was attacked with severe headache and pain in left ear. The pain continued, without intermission, for several days; and during that time he cried almost incessantly, and seemed drowsy and stupid. A discharge then took place from the ear, at first small in quantity, but afterwards rather abundant, and followed by a gradual mitigation of all the symptoms. He had afterwards attacks of the same kind nearly every three weeks, and during the suppression of the discharge he was quite deaf in the affected ear; but on the subsidence of the acute symptoms he gradually recovered his hearing. His last illness commenced about five weeks before he entered the hospital, and was preceded by the usual premonitory symptoms. The discharge did not appear at the usual time; but nearly eight days from the commencement of the attack a hard painful swelling was observed behind the left ear: it seemed to proceed from the mastoid process, and slowly extended upwards, forming the abscess already described. The swelling and apparent distortion of the face were observed only a few days before he came under my care.

Inspection, forty-eight hours after death.—On laying open the abscess, the squamous portion of the temporal bone, posteriorly, was found denuded of its pericranium. When the calvarium was removed, the dura mater in the vicinity of the left ear was thickened, spongy, and of a dirty greenish colour: some purulent matter was deposited between it and the bone, and internally the arachnoid could not be detached from it. This thickened portion of the dura mater appeared slightly concave on its cerebral aspect, and the concavity corresponded to an ulcer on the left hemisphere of the brain, at the junction of the middle with the posterior lobe. The ulcer was nearly circular, with ragged edges, and almost the size of a fourpenny-piece. It was quite superficial, coated with a puriform secretion, and surrounded, to the extent of several lines, by a faint ash-coloured areola. There was no apparent alteration of the cerebral substance. At the superior extremity of the fossa, in which the lateral sinus is lodged, there was a carious opening in the temporal bone, of an elliptical form; it was filled with thick purulent matter, and communicated with the cavity of the ear. The left lateral sinus was filled with puriform matter, and lined with a yellowish semi-organized false membrane. Near the termination of the sinus, at the jugular fossa, its cavity was obliterated by a coagulum which was slender and pale at its origin, but thicker, and of a deeper red colour, where it dipped down into the jugular vein. The pseudo-membranous substance was interposed between the coagulum and the walls of the sinus. The canal became completely impervious at the torcular Herophili, from the quantity of lymph thrown out by its parietes. The rest of the brain was healthy. Quantity of fluid in ventricles natural. On sawing open the cavity of the tympanum it was found completely divested of its lining membrane, and containing a quantity of thick purulent matter. The ossicula auditus were gone, as well as the membrana tympani. The mastoid cells were completely destroyed, and the internal auditory canals were full of caseous pus. The veins of the diplöe appeared healthy. Nearly a pint of whey-coloured flaky serosity was found in each pleural cavity. The lower lobes of both lungs were congested, and studded with purulent deposits of various sizes. Both pleural sacs were coated internally with a thin layer of shaggy lymph, evidently of very recent formation. Other viscera sound

There are various important considerations connected with the history of the preceding case. It is impossible to doubt that the affection of the ear was the first link in the chain of morbid phenomena, and that the caries of the temporal bone was a consequence of the extension of the disease to adjacent structures. The external abscess was evidently the result of the suppuration within the mastoid cells, and was probably simultaneous in its origin with the caries of the posterior wall of the tympanum, which eventually led to meningitis, ulceration of the brain, and phlebitis of the lateral sinus. The secondary abscesses in the lungs were probably the immediate cause of death, as in cases of traumatic phlebitis.

Ulceration of the surface of the brain is a very uncommon appearance, although distinctly described by several writers. Abercrombie* has only seen one instance of it. It is perhaps most frequently observed as a result of other lesions of the cerebral substance, and is so commonly associated with them, that it becomes difficult to determine how far the chief symptoms depend upon the ulceration alone. In the case just related there is a close analogy between the symptoms preceding death and those which have been observed in other examples of this rare affection, by writers on cerebral disease. The singular convulsive motions, resembling chorea, were observed in a case related by Dr. Powel,* in which there were large irregular patches of ulceration on the anterior lobes of both hemispheres. Dr. Abercrombie† also alludes to the case of a lady mentioned by Dr. Anderson, of Leith, where the patient was seized with a convulsive affection of the left arm and leg, occurring in paroxysms several times a-day, and generally continuing half an hour at a time. She was liable to attacks of coma, and died at last of gradual exhaustion. At the upper part of right hemisphere there was an ulceration two and a half inches long, one and a half broad and nearly an inch in depth. Similar involuntary motions of the extremities on one side of the body, occurring in paroxysms, were also observed in the cases of ulceration of the brain recorded by Dalmas and Scoutetten;‡ in the former case the forearm was principally affected, and in the latter the face was œdematous, and the patient could be roused to consciousness till within a few hours of death. In another case related by Bricheteau,§ where the ulceration co-existed with otorrhœa and caries of the temporal bone, death was preceded by furious delirium and convulsions. I have adverted to these examples of this affection, not with the view of proving that certain symptoms are invariably observed in every case of ulceration of the brain, and are therefore to be considered as pathognomonic of that disease, but merely to show that the peculiar character of the convulsions in the case related above is strikingly analogous to that observed by some authors in connection with similar lesions.

The condition of the lateral sinus, which was apparently unaccompanied by inflammation of the other sinuses, or of the cerebral and diploic veins, furnishes us with an explanation of the remarkable lesions of the thoracic viscera. The latter appearances belong to a class which many of our best pathologists believe to have their dependence on the diseased state of the veins immediately adjacent to the seat of a primary affection. The lesions observed, however, in the preceding case, do not exactly coincide with the views of certain writers, and I shall have occasion to advert to this want of coincidence hereafter, in tracing the connection between phlebitis of the sinuses and the pathology of secondary abscess.

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* Abercrombie on Diseases of the Brain, 3d edit. p. 114.

* Powel, Trans. Coll. Phys. London, Vol. v.

† Abercrombie on Dis. of the Brain.

‡ Lallemand sur l'Encéphale, lettre viii. obs. 1-9.

§ Bricheteau, Archives Gén. de Méd. t. 36, p. 517.

[To be continued.]

ON THE
COAGULATION OF THE BLOOD AFTER DEATH.

By James Paget, Esq., M.R.C.S.
Demonstrator of Morbid Anatomy, and Honorary Curator of the Museum, at St. Bartholomew's Hospital.

(*For the Medical Gazette.*)

An apology may be deemed necessary for the publication of observations similar to any which have been already recorded, and from which correct conclusions have been already drawn. Probably, such a proceeding will be considered justified, if the previous reords have been so far forgotten or overlooked that the general opinion is at utter variance with them and with the conclusions to which they certainly lead.

When the facts which I propose now to detail were first noticed by me, I imagined that none similar to them were on record, for they were not familiar to any to whom they were mentioned; but on looking over some of the many treatises that were written on *Polypus of the Heart*, during the 17th and 18th centuries, I found in one by Joseph Pasta [*], the greater part of the same facts set forth with an admirable accuracy, and made the groundwork of nearly the same conclusions as I had drawn from them. Perhaps similar observations were made by others of the same period; but as far as I can learn none noticed them before Andrew Pasta, the cousin and preceptor of the author already quoted, who is said to have described many of them in two epistles, (*De Motu Sanguinis post Mortem*, and *De Cordis Polypo in dubium revocato*), published in 1737. Since the time of the younger Pasta, who tells us that his own work was written chiefly for the purpose of restoring his cousin's neglected observations, the facts have been again forgotten, or have been quoted only for the sake of contradicting them; probably because both these authors mixed them with many errors, and drew from them many other conclusions besides the true ones. Except in the article *Blood, Anormal Conditions of*, in the Cyclopædia of Anatomy, by Dr. Babington, in which they are very briefly mentioned, I do not think there is any modern work in which these facts are recorded, although they seem to be the only ones that can guide to a correct judgment of the period at which the coagulation of the blood in the heart and vessels has taken place. But whether there be or not, the apology already offered for relating them again ought to be deemed sufficient, for there can be no doubt that the prevalent opinion is, that the large masses of fibrine, which contain little or none of the colouring matter of the blood, and adhere firmly to the walls of the heart, are formed some time previously to death.

This opinion is expressed more or less distinctly in all the most esteemed works on the diseases of the heart, from that of Corvisart onwards. It has lately been very strongly advocated by M. Bouillaud, both in a special paper on the subject, and in his great Traité des Maladies du Cœur, and more recently in two articles in L'Experience [*]; and he not only states the auscultatory and other symptoms which these supposed polypi of the heart produce, but he gives a full account of their causes, and describes the treatment which he has found most successful in removing them, and the stethoscopic and other signs by which their gradual disappearance from the interior of the heart may be recognised. The deservedly high reputation of M. Bouillaud gives such weight to his opinions, that when they are recorded on the side of an old error, I may reasonably fear whether the following facts, simple and conclusive as they seem, will be sufficient to establish the truth, which I believe to be, that the coagulation of the blood in the heart and large vessels during life is a very rare event, and had not occurred in a great majority of the cases which are described as examples of it.

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[*] De Sanguine et de Sanguinis Concretionibus per Anatomen indagatis et pro causis morborum habitis Quæstiones Medicæ.—Bergomi, 1786. 8vo.

[*] Mai et Juin, 1839.

Having, without any definite object, taken accurate notes of the condition of the blood found after death in the principal parts of the circulatory system, of nearly 150 of the bodies which I had lately examined, I was anxious to discover whether an analysis of the numerous facts thus collected would lead to any general results. Among several of more or less interest was the following:—whenever in the coagula found after death in the heart and large blood-vessels the colouring matter has separated from the fibrine of the blood, so that a part of each coagulum is nearly colourless, and more or less similar to the buffy coat of blood drawn from a person labouring under an acute inflammation, the least coloured portion is always placed at that part of the clot, which, in the position in which the body has lain since death, is at the highest level.

In proof of this, if, in any case in which coagula are found in the heart, that organ be either examined as it lies in the chest, or be held in the position which it naturally occupies in the recumbent body, it will be constantly found that the uncoloured portion of each coagulum is placed uppermost, that is, in the part which in the body lies nearest to the sternum; and that as the distance below the sternum increases, either the coagulum becomes more and more deeply coloured, and less firm, or else at some definite lower level presents an exact plane of separation between the uncoloured and coloured portions. A similar observation may be made in the long branched coagula that lie in the pulmonary arteries. In the trunk of the artery these coagula are rarely quite black; they are usually either colourless, or contain but a few of the blood-globules, and these placed at the most depending part. But however little colouring matter there may be in the part of the coagulum which lies in the trunk of the pulmonary artery, the extremities of its numerous ramifications, which are contained in the posterior branches of that vessel, are always more or less completely black. The same rule is observed in the coagula in the branches of the pulmonary veins, and in those which occupy the vena cava superior, and its chief branches; in all of which the portion of the coagulum from which the blood-globules have separated is always that which lies on its uppermost (or, as the parts are usually described, its anterior,) surface. Again, a similar fact is evident in the coagulum usually contained in the longitudinal sinus: if that canal, at the vertex of the head, contain a colourless coagulum, it will constantly be found, on drawing it gently out, that it is black at that part where it passes down the occiput; and whatever be the colour of the coagulum in the longitudinal sinus, the blood in the lateral sinuses is never, as far as I have seen, more than loosely coagulated in a soft black mass. In short, wherever the blood is examined, illustrations of the same rule are met with; as, for further examples, in the invariable blackness and softness of the coagula, (if any have formed) in the vena azygos and vena semi-azygos; in the blood of the renal veins, as compared with that of the vena cava inferior adjacent to them; in that of the descending branches of the internal iliac, compared with the firm, and often nearly colourless coagula in the external iliac and femoral veins; in the soft black coagulum of the thoracic aorta, which lies low in the posterior curve of the spine, compared with that which in the same subject is often colourless in the abdominal aorta on the anterior lumbar curve.

It follows from these facts, which I have confirmed by the careful examination of a considerable number of subjects, that, regarding the cavities of the heart, and the large vessels leading to and from them, as one cavity, any quantity of blood contained in it at the instant of death coagulates according to the same method as it would if drawn from the body into a basin, or any other vessel; and that if its coagulation be sufficiently slow, or the proportion of fibrine large, the colouring particles always sink to the lower level, and leave a certain quantity of uncoloured fibrine above them. In different cases, this fibrine, as well as the rest of the coagulum, varies considerably in its general aspect, and in the degree of its adhesion to the walls of the heart; and according to the condition of the blood from which it is separated, presents nearly all the varieties which have been described as unorganized, and slightly or partially organized polypi, or concretions, of the heart.

The rule applies equally whatever be the degree of coagulation of the blood. The best illustrations of it, however, are in the cases where the cavities of the heart are all filled with firm coagula, in which there has been almost a complete separation of the blood-globules from the fibrine, so that large white, yellow, or pinkish masses, of a firm, transparent, or glistening jelly-like substance, are found completely filling one or more of the cavities, and closely adhering to their walls, and in the interspaces of their muscular fasciculi. In these, which it is to be observed are the very cases upon which the opinion of the frequent coagulation of the blood during life is chiefly founded *, the vena cava inferior is full of soft black coagulum, without any trace of buffy coat. This is, on the one hand, continuous with a white or white and black coagulum, which fills a portion of the inferior cava lying on the lumbar vertebræ, and on the other, forms one mass with that in the right auricle, in which there is always a distinct level, above which all the coagulum is composed of more or less pure and firm fibrine, and below which it is quite black and much softer. The coagulum in the auricle is again continuous with that in the superior cava and its branches, in which there is usually the same degree of separation of the chief constituents of the blood as in the blood in the auricle, and always an equally distinct gravitation of the colouring particles to the lower or dorsal portion of the coagulum. Lastly, the coagulum in the right auricle is usually continued in one mass into that in the ventricle, where again similar characters may be remarked. The apex of the right ventricle being, in the recumbent posture of the body, the highest point of the heart, there the blood is never in these cases at all coloured; commonly the whole coagulum in this ventricle is white or yellow, but in many cases it exhibits a black layer at the most depending part; that is, at that part which lies in contact with the posterior wall of the ventricle, behind the auriculo-ventricular opening, and just below the origin of the pulmonary artery. The coagulum in the right ventricle is continued into that in the pulmonary artery. In the latter there are usually three semilunar grooves of moderate depth, by which it is sometimes nearly cut through, and which show that it was modelled on the sigmoid valves. If there be any colouring matter at all in the *trunk* of this arterial coagulum, it is always situated at its dorsal or inferior aspect; but in cases of extreme separation of the blood it is quite colourless, for the natural course of the main trunk of the pulmonary artery is somewhat backwards as well as upwards and to the left. Tracing the branches of this coagulum, the largest are always those which lie in the posterior divisions of the artery; and in these the quantity of colouring matter constantly increases, but still occupies the same depending part of the coagulum, on which, at some distance towards the back of the lungs, the uncoloured fibrine is arranged in the form of only a thin riband-like superficial layer. At last, the coagulum becoming gradually softer, one arrives at branches of the artery near the back of the lungs, in which it is entirely black; and still further back than these, the arteries contain only fluid blood, or a deeply blood-stained serum. If, on the other hand, the coagulum be traced from the trunk of the pulmonary artery into its anterior or sternal branches, it is found in all these more adherent, smaller and drier, and containing scarcely a portion of the colouring matter of the blood.

On the opposite side similar appearances present themselves: the blood in the posterior pulmonary veins is fluid, or if coagulated is less firmly so than that in the anterior veins; that in the left auricle is less coagulated than that in the left ventricle; and so on according to the same rules as are observed in the venous system.

The few apparent exceptions to this rule that sometimes occur, will I believe always prove, on careful examination, to be examples of it. For instance, when the right auricle is very much dilated or distended, the separation of the colouring matter of the blood in its appendix and anterior part may be more complete than in the right ventricle; and when the body has been placed immediately after death in some other than the recumbent posture, the level of the separation of the fibrine from the dark clot is correspondingly altered. Thus, in the body of a man who had suffered from excessive dyspnœa for several days, and having died while sitting up with his head resting on his knees, had remained in that position for three or four hours after death, the condition of the coagula was almost exactly the reverse of that usually observed; so that I ventured to predict, before hearing the circumstances of his death, that the body had not been *laid out* in the usual manner. The blood was darker and softer in the ventricles than in the auricles, and there was less separation of fibrine in the auricles than in the superior cava, or the trunks and superior branches of the pulmonary vessels: the blood was also less coagulated in the inferior cava on the lumbar vertebræ, than in the same vein at the diaphragm, and more completely separated in the superior cava than in any other part of the circulatory system that I examined.

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* They occur most frequently, but not exclusively, in those who die of acute inflammations. I have seen such appearances in two persons, who died of hemorrhage, which was in neither preceded by any inflammation; and in the bodies of many who have died of perfectly chronic disease.

The close similarity which, it is evident from these facts, exists between the coagula of blood found in the heart and blood-vessels after death, and those which form when blood is drawn from the body during life, and left at rest, leaves no room for doubt that the process by which they are formed is in both cases essentially the same, and that the coagula found after death have resulted from the blood *while at rest* having separated into its constituent parts, of which the serum has gravitated into the lower parts of the body, and there, more or less stained with colouring matter, has been imbibed into the porous tissues, while the globules have slowly descended during the *setting* of the fibrine, and have left a greater or less quantity of uncoloured coagulum above them. There is no perceptible difference whatever, (except that of external form), between the coagula of blood found in the body after death, and that which is formed of blood drawn into a basin; each has the shape of the cavity in which it is contained; the one is simple, the other branched and complex in its form; but in the disposition of their constituent parts they are identical.

If the coagulation, by which these *polypi* are formed, occurred during life, while the heart was still acting, and at least a part of the blood still moving, it is in the highest degree probable that the fibrine would be deposited in concentric layers on the interior of the heart and vessels, as it is in the sac of an aneurism, and that the parts of chief coagulation and separation would be the auricles, which are less forcibly moved than the ventricles. But the actual results of the coagulation are the very reverse of these, and are explicable only by supposing that the whole mass of blood was fluid, when at the time of death it all nearly at the same instant ceased to move and began to coagulate.

The coagula that do form in the heart and large vessels during life generally present characters by which they may be easily distinguished from the preceding. The simplest kind of this class are those which are deposited in concentric layers on the walls of the heart or blood-vessels, like the coagula in an aneurismal sac. Examples of these are very common in cases of gangrena senilis, in phlebitis, in those in which the veins adjacent to malignant growths become blocked up by coagula, in certain cases of granular kidney, which are probably accompanied by inflammation of the renal veins, in analogous cases of cirrhose, in pulmonary apoplexy, and in some other complaints. Similar coagula in the heart are more rare. I have found them in two cases of excessively dilated left auricles, where the lining membrane was diseased and rough—cases which might, perhaps, justly be called aneurisms of the auricles;—in one or two cases of great dilatation of the left ventricle, and in cases of real aneurism of the same part. But in all these cases there can be no difficulty in determining that the fibrine was deposited during life. It is arranged in evident concentric layers, which are easily and definitely separable, and often have a thick fluid between them; the portion nearest the axis of the cavity or vessel is least firm and darkest; none of it is glistening or transparent, like the coagula formed after death, or the buffy coat; but all is dull and opaque, of a reddish or brownish grey colour, grumous, and looking granular. In the heart the fibrine thus deposited during life occupies not any large portion of the cavity, but only adheres to some particularly dilated or diseased part, and is quite separate from the coagula which have formed after death,[*] and which present all their usual characters. In short, as the origin and mode of formation of the coagula of the one kind are similar to those of inflammatory blood, with its buffy coat, and those of the other kind are similar to those of the layers of fibrine in an aneurismal sac,—so in all their important characters are they respectively similar; and hence the buffy coat, and the fibrine of the anuerismal sac, substances which are familiar to every pathologist, may be taken as certain standards, by a comparison with which a correct decision of the date of formation of coagula within the heart and large vessels may be always attained.

The other formations in the heart with which the white coagula formed after death have been confounded, are yet more different from them. One kind of these consists of those rounded hollow bodies that usually adhere among the columnæ carneæ, and are of an opaque yellowish colour, moderately firm consistence, and filled with softened fibrine,[†] and to which Laennec[‡] gave the name of vegetations globuleuses. About these, if the description that I have given of the other kind be observed, there can be little question; the existence of the softened fibrine, which constitutes the puriform fluid in the middle of the mass, is sufficient proof that the clot was maintained for at least many hours at the natural temperature of the living body; and all the characters of these masses, as far as I have seen or read of them, are widely different from those of the buffy coat.

As little doubt can exist respecting the nature of those actually vascular growths which are sometimes found attached to the walls of the heart, and much more rarely to the interior of the arteries. These are never transparent or shining, or in any respect similar to the fibrine of the blood; the heart usually contains, besides them, masses of common coagula; they are attached as firmly to the walls from which they grow as their parts are to each other; they usually adhere by a base of less circumference than the rest of their mass; and when a section is made through one of them and the wall of the heart, there is seldom any abrupt line of demarcation between them[*].

The only kind of coagula about the period of formation of which I can now entertain any doubt, are the little shreds of fibrine that are sometimes found adhering to the chordæ tendineæ, and which are certainly very similar to those obtained by stirring the blood. It is not improbable that in the last period of life, as the blood passes among those fine tendinous strings, some of its fibrine may separate and adhere to them, under the influence of the same unknown force as that by which it is separated by sticks, or other small bodies, made to move in it. But this opinion can be accepted as only in the lowest degree probable.

If it be true that the cases are very rare in which coagulation of the blood takes place in the heart and vessels during life, and that the fibrine thus deposited can be easily distinguished from the coagula that form in the bodies of nearly all persons after death, and that the latter are formed after the same method as in blood drawn from the body during life and left at rest, it follows, that by the examination of the coagula in the heart and large vessels after death, a judgment may be formed of the condition in which the blood was during life, with at least as much certainty as by the general examination of that drawn in venesection. The researches of many observers, and especially those of MM. Andral and Gavarret, of which abstracts have been recently published[†], prove that a knowledge of the relative proportions and respective characters of the main constituents of the blood forms an important feature in the history of each disease. I would, therefore, venture to suggest, that the general condition of the blood after death should be ascertained with as much care as that of each of the organs of the body, and that a description of it should form a part of each future record of post-mortem inspections. The notes which I have made of the last two hundred cases examined, already afford some conclusions of much interest, which, if I should be able to confirm them by some hundreds more of inspections, may grow to be important.

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[*] Sometimes one finds the black portion of a coagulum formed after death separated from the white. The latter, in these cases, always lies uppermost, and adheres to the anterior (upper) wall of the cavity. There can be no doubt that the black part of the clot has fallen down from the white and firmer portion. I have seen such cases only when the dark part of the clot was soft and very easily broken.

[†] See the excellent Paper by Mr. Gulliver, Medico-Chirurgical Transactions, Vol. xxii., p. 136.

[‡] Traité de l'Auscultation Mediate; t. iii. 334.

[*] The reader may find many circumstances of much interest connected with these and other formations in the heart, detailed in a paper by Dr. Hughes, in the Guy's Hospital Reports, Vol. iv.

[†] L'Expérience, Août 1840.

A notice of the condition of the coagula of blood is absolutely necessary in those cases of medico-legal investigation in which it is required to know in what position the body was placed in the first hours after death. The case I have already mentioned, in which the condition of the blood was the reverse of that usually seen, because the dead body remained for some time in the erect posture, shows that in these cases the arrangement of the several portions of the clots would afford a most important part of the evidence.

In all cases it must be remembered that the coagulation that takes place in the body is much slower than that which ensues in blood drawn from it, either during life or after death; so that a quantity of uncoloured fibrine is found in the heart and uppermost vessels of the dead body in many cases in which it is most probable that had the blood been drawn during life it would not have presented a buffy coat. In the majority of cases the blood does not coagulate in the body for the first four hours after its rest has commenced; in many it remains fluid for six, eight, or more hours, and yet coagulates within a few minutes of its being let out of the vessels. But as this greater slowness of coagulation is common to all, it is not material in a comparison of the blood of many dead bodies, though it would require to be carefully estimated in a comparison of the blood of the dead with that of the living.

DOUBLE UVULA.

To the Editor of the Medical Gazette.

SIR,

MAY I request the favour of a place for the following extraordinary case in your valuable journal, which must prove interesting to the medical public, and to the physiological inquirer in particular. On the 2d of November I was called upon to see Mary O'Donnell, a peasant girl, aged eight years. She had an affection of the glands of the neck, for which I prescribed preparations of iodine, with gentle saline aperients, under which treatment she is now nearly well. Having had occasion to inspect her throat I perceived two *uvulas* projecting from the palate, perfectly distinct and of equal size, of which circumstance the parents of the child were seemingly ignorant. She had never complained of inconvenience attending it. Her voice is clear and strong; and, strange to say, she can with great ease extend it to *three octaves*. Now I do not remember that any writer has mentioned the *uvula* as connected with the mechanism of the human voice. Mr. Herbert Mayo states, "The range of the human voice seldom exceeds two octaves and a half." I have never seen a case similar to this, but have seen two cases with total absence of the *uvula*; one in the person of a Hindoo girl at Calcutta, in 1836; and since then in a patient of Mr. Wallace, surgeon, of Bow: in both cases the voice was perfectly natural.—I am, sir,

Your obedient servant,

GEORGE BOLSTER, Surgeon.

Tullerboy, Croom, Ireland,
Dec. 29, 1840.

ANALYSES AND NOTICES OF BOOKS.

'L'Auteur se tue à alonger ce que le lecteur se tue à abréger."—D'ALEMBERT.

On Diseases of the Hip-joint, with Observations on Affections of the Joints in the Puerperal State. By WILLIAM COULSON, Esq., Surgeon to the Magdalen and City of London Lying-in Hospitals, &c. &c. Second edition. London, 1841.

THIS is in several respects, we perceive, a different treatise from that formerly given to the public in the first edition. The author has made considerable changes both in the form and substance of his work, and of those changes several, we think, are valuable improvements.

In the first place, he has consulted the convenience of his readers by altering the shape of the volume from 4to. to 8vo. The big editions of the *patres medicinæ*, like the long yarns of our senior relatives, we can readily tolerate; but the like in an *alter ego*, a contemporary, a rival,—for such our indulgence extends not beyond the 8vo. In the next place, he has changed for the better his arrangement. In the former edition, Mr. Coulson placed his observations on the causes and morbid anatomy before those relating to the symptoms, which we agree with the Edin. Med. and Surg. Journal, Jan. 1837, was objectionable in two points of view; first, because he was bound to inform us what the disease was, nosologically speaking, whose causes and anatomy he was about to examine, and this could be done properly no otherwise than by an enumeration of the symptoms, *i. e.*, in effect, by an adequate *definitio morbi;* and, in the second place, because, in a practical work, which Mr. Coulson's evidently is, the symptoms should by all means take the lead, on account of their superior importance to the practitioner: this defect of arrangement he has corrected. Again, instead of crowding together in one chapter, as in the first edition, the various diseases with which Hip-joint Disease may be confounded, Mr. Coulson has in this edition judiciously devoted to each of them a distinct chapter. A chapter devoted to the normal anatomy of the hip-joint in the former edition has been, we perceive, omitted in the present; and, on the other hand, chapters 2, 3, and 4, on nervous affections of the hip-joint, on malignant affections, and on congenital affections of the same, have been, we think, nearly wholly re-written, and, at any rate, greatly enlarged and much enriched with valuable matter; while chapter 5, on Puerperal Affections of the Joints, is an entirely new and very important addition to the work.

The author, we perceive, has withdrawn two plates from his work, and substituted excellent woodcuts: by this change we believe that the expense of the volume rather than the value has been diminished. Altogether the second edition of this work is, as it ought to be, a decided improvement on the first, and is, in truth, an excellent manual of practice, so far as the hip-joint affections are concerned.

The doctrinal features in the present edition that strike us as most characteristic are, first, as to pathology (chapt. ii. sect. 2 and 3), that the hip-joint disease is essentially a disease of the secerning function, and that the tissue first attacked is the synovial membrane of the joint; and, second, as to the ætiology (chapt. ii. sect. 4), that the disease is not a local affection, but merely a local expression, symptom, or effect, of a constitutional taint or cachexy; and, third, with regard to treatment (chapt. ii. sect. 5), that he repudiates wholly the use of moxa, issues, setons, and counter-irritation generally, in strumous subjects of hip-joint disease. In each of those points we are disposed to assent more or less fully to Mr. Coulson's views.

On the whole, we are of opinion that the author has on this occasion fully sustained his reputation as a writer, observer, and practitioner; and we have no hesitation in saying that in its present form his work is, for practical purposes, one of the very best on the subject with which we are acquainted. We especially recommend to the reader's notice his chapter on puerperal affections, in every section of which he will meet with matter of interest and instruction. We regret that we have no space for extracts from this valuable chapter.

MEDICAL GAZETTE.

Friday, January 15, 1841.

> "Licet omnibus, licet etiam mihi, dignitatem *Artis Medicæ* tueri; potestas modo veniendi in publicum sit, dicendi periculum non recuso."
>
> CICERO.

ILL-TREATMENT OF A WOMAN IN THE ETON UNION.

When things are at their worst, says a popular adage, they must mend; and never could the proverb have been more applicable than to the present administration of the laws for the relief of the poor in England. The "test of destitution," so often lauded and enjoined at head-quarters, turns out to be merely a denial of real relief; and the cold severities delicately hinted at Somerset House, when translated into vulgar practice, shock the most apathetic looker-on, and force even the economists to confess that some error has been committed. Indefensible misconduct on the part of some understrapper of the new system makes them tremble for its success; and, like Talleyrand, they allow that it was not only a crime but a fault. Such instances have of late been so common, that they cannot be attributed to chance by the most superficial; and it is obvious to every man of penetration, that the wrongs inflicted on the suffering poor of Hendon, Hoo, or Eton, are not the natural growth of these several places, but rank weeds transplanted from London; that although the creatures who are made masters of workhouses do not understand the decencies of oppression, and cannot grind the faces of the poor with any degree of politeness, they perfectly comprehend the spirit of their masters' instructions. Like soldiers to whom a conquering general allows free quarters, their misdeeds are attributable to him, though they often transgress the letter of his permission, and occasionally go beyond what he really intends. Hence, although it is impossible for any one possessed of a spark of manly feeling entirely to subdue his disgust at the petty instruments of tyranny, his anger should chiefly be directed against the more powerful oppressors who first set them in motion: when we read of the ravaging of the Palatinate, under Louis XIV., it is not on the miserable serfs in uniform who fired the villages, but on the minister and general who commanded the deed, that History lavishes her indignation.

Were we to give way to our natural feelings at the working of the New Poor Law, and become registrars of the iniquities committed under its sanction, the heading "ill treatment of a pauper in the —— Union" might be kept standing at our printers'. The circumstances, however, of the case which has given a title to our present article are so very remarkable, that we think it our duty to point them out to those of our readers whom they may have escaped in the immense columns of the daily newspapers.

Elizabeth Wise is an inmate of the Eton Union Workhouse, together with her child, who is not yet three years old. As the child had chilblains, and was otherwise ill, the mother had leave to sleep with her until she should get better. The permission was afterwards withdrawn; but Wise was still allowed to attend to the child's chilblains. Supposing the permission to be in force, she went up to the nursery, on Sunday morning, the 27th of December last, and was unfastening the bandages on her child's feet, when Joseph Howe, the master of the workhouse, came up and desired her to quit the place. According to the master's account she was disobedient; did not leave her little patient with due Bastille readiness, and seems to have reproached several women with the fact of her child having been born in wedlock, and theirs not. In short, she was "refractory." The master accordingly carried her off "like a bird," in the language of one of the witnesses; she being a weak diminutive woman, and he a giant of six feet six. In forcing her down stairs, Wise says she was very much bruised, both on her arms and legs. One of her fingers, too, was hurt against the railings, and bled profusely. So far, indeed, the history does not prepossess us in favour of the Eton Union; we see no exemplification of that perfect system which, while it astounded the impostor, was to afford more thorough relief to genuine indigence. The separation of a mother, too, from so young and ailing a child, forms a strange contrast with the laudations of the new discipline sent forth from time to time; and makes us doubt whether even the most grave-faced puffers can pretend to be in earnest. Yet, had matters gone no farther than this, it would have been too painfully familiar to rouse attention; one does not mind squibs, said Colman, when one has been sitting all night on a barrel of gunpowder; and we should scarcely have selected the case for comment, had it been merely on a level with New Poor Law harshness.

Elizabeth Wise was now imprisoned in the Black-hole, or Refractory Ward, for twenty-four hours, on bread-and-water diet. Her allowance of the former was five ounces for dinner, according to her statement, or eight, according to the master's. This refractory ward has no fire-place; there is a little window in it without glass, and the shutter does not shut close, so that the cold air could not be excluded. There were neither blankets, sheets, nor bedding of any sort in the room, and the night was that of the 27th ult. during the hard frost. No wonder that when the prisoner came out the next morning, to use the words of her evidence, "I was so cold, that I had no feeling in any part of my body. I had no animation." But the most singular point of this strange history is yet to come. Wise was refused a chamber-pot. Not, as you might suppose, reader, just to worry and degrade the prisoner, by reducing her to the level of a beast, but for a reason equally humiliating to the order of the Eton Union. It was apprehended, it seems, that she would mutilate herself with the utensil. Was the woman a lunatic, then? Not a bit of it. Mutilation or suicide was expected simply as the natural result of workhouse discipline. Even when the new system is in its best humour, it is not very amiable; but, "when goodness wears the sterner face of love," and appears in the guise of a refractory ward without fire or bedding, she thinks it well to be cautious, for even crockery is a deadly weapon in the hands of despair. A woman with a young child every moment requiring her care, and exciting her sympathies, is most unlikely to commit violence on herself; but the difficulty may be got over in a Union Workhouse. Separate mother and child—wear her down by every variety of moral and physical hardship—and ask the new friends of the poor for the result. Half an hour after Wise had been released from her den, she was ordered by the master to clean it; and being still too frozen to do so, she was again locked up in it for seven hours.

When the case came before the Board of Guardians, they resolved that the pauper had been guilty of improper conduct; but that Mr. Howe "had acted somewhat hastily in the matter, and that he should have provided the refractory room with bedding and proper convenience during the time that Wise was confined there."

The Hon. and Rev. Godolphin Osborne, an *ex officio* Guardian, was not content with this lukewarm resolution, (to his honour be it spoken), but brought the case before the Magistrates sitting in petty session at Eton, on Saturday, January 2d.

The case against the master of the Workhouse was stated by Mr. J. J. Williams, a barrister, who quoted the resolution we have given above, from the Guardian's Minute-Book. Curiously enough, as if it had been destined that this case should afford the utmost possible insight into Poor Law ways, Mr. Barratt, the clerk to the Board, showed great unwillingness to be sworn, and said, "I shall object to prove any copy of any resolution furnished to a gentleman who is a Guardian."

Howe's defence was very lame, and his witnesses did him no service. It is by no means clear that Wise spoke to him in the most courtly tone, but it is obvious that her punishment was out of all proportion to her offence; and it is equally certain that the tone in which she addressed him was called forth by the absurd and wicked measure of separating her from the child—though the criminality of this belongs perhaps rather to the Commissioners than to the master of the workhouse.

One of Howe's witnesses, Mr. Hammond, the surgeon of the Union, broke down altogether. "She was a turbulent patient," he said. "She and her husband seemed to know better than I did, and found fault with the pills and salts I ordered. I speak only of her as a patient, and not of disorderly conduct in the house. When I ordered pills they wanted salts, and when I ordered salts they wanted pills." Alas! so do countesses, and eke wives of citizens and notable pin-makers!

The end of the proceedings was, that the defendant was fined ten pounds for an assault, with fifteen shillings and sixpence costs, or in default of payment to be committed to the House of Correction for three months.

Few decent persons will be found to lament the punishment inflicted on Joseph Howe, but many will ask whether before the tribunal of Astrea the instigators of such deeds are not far more culpable than the petty understrappers, whose coarse interpretation of their taskmasters' behests is sometimes censured, as if it were possible to reconcile the laws of humanity and the laws of Somerset-House. But masters of workhouses must recollect that their unpolished violence cannot always be commended by aristocratic Malthusians. Privileges, too, vary with places;

> That in the captain's but a choleric word,
> Which in the soldier is flat blasphemy.

Mr. Williams was right when he said, "He was convinced that the bringing forward of this case would be productive of immense good throughout the country."*

Since the above investigation the master of the workhouse has been dismissed by the Poor Law Commissioners;

> Sed quis custodiet ipsos
> Custodes?

Who will dismiss *them*?

ST. MARYLEBONE INFIRMARY.

Section of one of the Hamstring Tendons.

R. C., aged 21, had suffered from chronic inflammation around the knee-joint for eight or nine years, ending in suppuration, abscess, and considerable thickening. During that period the semiflexed position had been found most comfortable to the patient, and she had been permitted to keep the leg in that position until it became permanently fixed at nearly a right angle with the thigh. By absolute rest and counter-irritation the inflammatory action was ultimately subdued, and all sinuses healed, and the thickening greatly lessened. When perfect quiet was restored, Mr. Phillips ascertained that motion was retained at the joint; flexion could be carried until the heel nearly came in contact with the buttock. A modification of Amesbury's extending apparatus was placed in the ham, for the purpose of endeavouring to make extension. For three months these attempts were persevered in, but without success. At her own request she was discharged, and in a few months she was married. She again applied to Mr. Phillips to ascertain whether any thing could be done for her; he gave her some hopes, and she was again admitted under his care. After a careful examination he determined to make the section of the semi-tendinosus tendon, which alone seemed to offer a decided resistance to extension. The section was made, and on the third day the same extending apparatus which had been formerly used was applied. Extension was made very gradually; sometimes a single revolution, sometimes two, sometimes more, were made, daily, and by the end of six weeks the leg was nearly as straight as the other: motion was perfect, but the muscles had not so adapted themselves to their new situation as to enable her to stand firmly on that leg, but she could rest the whole weight of the body on it without inconvenience. She was now discharged, at her own request, and has since presented herself; the muscles are rapidly recovering the tone necessary to enable her to use it as well as the other.

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* Times, January 4, 1841.

Chronic Eczema.

In the female wards Mr. Phillips has lately had under his care three patients suffering from severe attacks of chronic eczema: the patients were of the age respectively of 38, 52, and 61; the former two presented, at one time, on the hand and arm, the impetiginoid form of the disease. There being no counter-indication, in as far as the digestive organs were concerned, they were all treated by tepid bathing every other night, and a mixture, containing mag. sulph., ʒj.; acidi sulph. dilut. ♏x., three times a day. This plan was persevered in for a month, with a certain though small amount of benefit. At this time five minims of tinct. lyttæ was added to each dose of the medicine in each case. The relief afforded to the younger patient was rapid and decided, so much so, that in six weeks she was discharged cured. In the other cases no very decided amount of good was experienced, although the tinct. lyttæ was carried to 15 minims three times daily. Under these circumstances they took the liq. arsenicalis in doses of five minims three times daily. Its effects, after ten days, were very striking; and by the end of the fifth week, all that remained of the disease was a certain extent of œdema of the lower limbs; which had more severely suffered from the disease, and which was soon dissipated by bandaging.

Incomplete Dislocation of the Humerus.

A lad aged sixteen was thrown from a horse, and dislocated the left humerus; it was reduced in a few hours, at an hospital where he remained five weeks, and was then discharged, A few weeks ago he presented himself at the Infirmary, and was admitted a patient. Upon examination, it was found that the shoulder presented a greater flattening than is usually seen even when the head of the bone is unreduced; that, between the extremity of the acromion, which was sharp, defined, and superficial, and the head of the humerus, there was a distance of nearly two fingers' breadth. The deltoid was paralysed, the other muscles were natural. He could swing the arm backwards and forwards with some force, but he had not power to raise the arm. Mr. Phillips conceived this to be a clear case of incomplete luxation; the head of the bone rested on the inferior margin of the glenoid cavity. The question which excited curiosity was, how it had been produced. Mr. Phillips's opinion was that reduction had been completed, but that sufficient pains had not been taken to maintain the head of the bone in its proper position; that before the capsule was consolidated, the deltoid being powerless, the weight of the arm was sufficient to bring the head of the bone to the position it occupies at present. He strongly urged the necessity of maintaining the head of the bone in its proper cavity until the ruptured capsule is healed, and that this is not effected at the shoulder joint in less than thirty days. He attributes the occasionally frequent recurrence of dislocation at some joints either to this circumstance, or to malformation.

In this case the course adopted was to keep the head of the bone well supported against the acromion, and to endeavour to restore the deltoid. To accomplish the latter indication, electricity was first employed, in the form of sparks; that failing, a more continuous current of electro-galvanism was directed in the course of the circumflex nerve. It did not succeed, and the red hot iron was used in such a way as to produce very energetic local excitement. A pointed iron was heated to whiteness, and the whole of the integument covering the deltoid in turn came under its action. It was rapidly passed from point to point, being allowed to remain in contact only long enough to produce a red spot, without disorganising the integument. It is a mode which Mr. Phillips occasionally employs with great advantage. It was used a second time in this case without any manifest advantage; recourse was then had to strychnia. The integument was raised by a blister, and removed, and the surface was sprinkled with a mixture of ¼ of a grain of strychnia, with a grain of powdered sugar. This powder was used three times, but the paralysis of the deltoid remained. He became tired of the treatment, and after six weeks he left the Infirmary in much the same condition as when he entered it.

ON THE USE OF
BOILING WATER IN THE TREATMENT OF CALLOUS FISTULÆ.

By Dr. Ruppius, of Friburg.

The author was induced to adopt this method of treatment from what he had seen it effect in the hands of Rust of Vienna, and from the observation that the granulations which grow from scalded parts of the skin are peculiarly florid, and prone to unite firmly; a consideration which, we may add, long ago induced French surgeons to adopt the actual cautery for the same means, and is the foundation of the very skilful operations of M. Lallemand for vaginal fistulæ. Two cases are related, one of recto-vaginal fistula from abscess after a severe labour; the other, of an incomplete fistula in ano, extending four inches up the side of the rectum. The treatment consists in introducing the pipe of a syringe filled with boiling water down to the further end of the fistula, (which if necessary, must be closed there with a finger of the other hand,) and slowly injecting a part of the contents. At the first operation only so much of the water should be forced in as is sufficient to stimulate the end of the fistula, so that it may commence healing at its deepest part, and, after the repeated injections, may make gradual progress in healing towards the surface. In both the cases that are related this procedure was strikingly successful.—*Fricke und Oppenheim's Zeitschrift. Juli*, 1840; and *Brit. and For. Med. Rev.*

THE PINE-APPLE.

When the British troops invaded Burma, they found the woods around Rangoon abounding in wild pine-apples, and a variety from the back of the Black Pagoda was in great request for its excellence; in the Malay Archipelago it acquires an enormous size, and sports into a variety called *the double pine-apple*, each pip of its fruit growing into a branch bearing a new pine-apple. It was, however, first introduced into Europe from South America, and as it is recorded, by M. Le Cour, of Leyden, about the middle of the seventeenth century: from Holland it was brought to this country in 1690, by the Earl of Portland, according to the Sloanean MSS. in the British Museum. There is a painting, formerly in the collection of Horace Walpole, in which Charles II. is represented as being presented with the *first* pine-apple, by Rose, his gardener; but there are some doubts whether that fruit was grown in England, or obtained from Holland. It may, however, be fairly concluded that pine-apples were exceedingly rare in this country, even at the tables of the nobility, in the beginning of the last century; for in 1716, Lady Mary Wortley Montagu remarks that pine-apples were on the electoral table at Hanover when she was there that year, on her journey to Constantinople; and she states that she had never previously seen that species of fruit. *(Letters of Lady M. W. Montagu.)* Since that period the cultivation of the pine-apple has been prosecuted with perseverance in Britain, but frequently the results have been very disproportionate to the expense incurred. Within the last twenty years, however, success has been more general; and in many instances a surprising degree of perfection has been attained, much greater indeed in England than in any other country having to contend with an extra-tropical climate; for instances are on record of pine-apples weighing 13lbs. and 14lbs. avoirdupois; and from 7lbs. to 8lbs. is by no means an uncommon weight for a single fruit.—*Miss Burnett's Useful Plants.* Jan. 1841.

[An entertaining compilation, illustrated with handsome plates.]

ROYAL COLLEGE OF SURGEONS.

LIST OF GENTLEMEN ADMITTED MEMBERS.

Friday, Jan. 8, 1841.

Edward Charles Elwall.—James Duddem Perrin.—Humphrey Hudson.—William Okell.—William Alexander Russell.—Thomas Bennett.—Frederick Melland.—Norman Chevers.

APOTHECARIES' HALL.

LIST OF GENTLEMEN WHO HAVE RECEIVED CERTIFICATES.

Thursday, December 17, 1840,

G. W. Hatherley, Bengal.—H. C. M. Stead, Knaresborough. Yorkshire.—H. Stott, Borobridge, Yorkshire.—E. S. Emmott, Broughton, Hants.

Wednesday, December 23, 1840.

James Ebenezer Batho, Cheshunt, Herts.—C. N. Bromley, Stone, Staffordshire.—E. Cheshire, Birmingham.—J. H. Toswill, Leicester.—J. Rhodes, Pontefract, Yorkshire.—J. T. Quekett, Langport, Somerset —H P. Crellin, Marlow Bucks —W. Hall, Lancaster.—R. Southey Hill, Basingstoke.—G. J. M'Kenzie, Dublin.—H. Figgins, Peckham Rye, Surrey

A TABLE OF MORTALITY FOR THE METROPOLIS,

Shewing the Number of Deaths from all Causes registered in the Week, ending Saturday, the 2d January, 1841.

Small Pox	102
Measles	30
Scarlatina	27
Hooping Cough	39
Croup	10
Thrush	1
Diarrhœa	3
Dysentery	0
Cholera	0
Influenza	5
Typhus	29
Erysipelas	8
Syphilis	0
Hydrophobia	0
Diseases of the Brain, Nerves, and Senses	182
Diseases of the Lungs, and other Organs of Respiration	487
Diseases of the Heart and Blood-vessels	28
Diseases of the Stomach, Liver, and other Organs of Digestion	61
Diseases of the Kidneys, &c.	10
Childbed	15
Ovarian Dropsy	0
Diseases of Uterus, &c.	1
Rheumatism	1
Diseases of Joints, &c.	3
Ulcer	0
Fistula	0
Diseases of Skin, &c.	0
Diseases of Uncertain Seat	152
Old Age or Natural Decay	135
Deaths by Violence, Privation, or Intemperance	41
Causes not specified	7
Deaths from all Causes	1377

Wilson & Ogilvy, 57, Skinner Street, London.

THE

LONDON MEDICAL GAZETTE,

BEING A

WEEKLY JOURNAL

OF

Medicine and the Collateral Sciences.

FRIDAY, JANUARY 22, 1841.

LECTURES ON THE PRINCIPLES AND PRACTICE OF PHYSIC,

Delivered at King's College, London,

BY DR. WATSON.

LECTURE XVIII.

Purulent Ophthalmia continued. Gonorrhœal Ophthalmia. Purulent Ophthalmia of infants. Strumous Ophthalmia.

WHEN we last met, I spoke of catarrhal opthalmia, *i. e.* a mild and common form of inflammation of the conjunctiva, resulting from atmospheric influences. I described its characteristic symptoms, and explained the treatment that has been found most successful for its cure; consisting chiefly in local stimulating or astringent applications.

I began also to speak of the severer forms of inflammation affecting the same part, and included under the head of *purulent ophthalmia.* The symptoms and course and consequences of the two varieties of this complaint, as it occurs in adults, are so essentially the same, that one description of its phænomena is enough. There are certain differences, however, that require to be noticed, in respect to its exciting causes. I laid before you the reasons which satisfy me, that what is called the Egyptian ophthalmia is a contagious disease; and which make it probable that the complaint is capable of being propagated from person to person, through the medium of the air, without the necessity for any substantial application of the morbid secretion from a diseased to a sound eye. These reasons, briefly stated, are as follows: that the disease was unknown in Europe till after the war in Egypt; that, arising among our own and the French troops in that country, it was conveyed by them to various places, and extended itself to soldiers who had intercourse with those troops; that when once introduced it spreads rapidly wherever men are crowded together within a small compass, pay insufficient attention to cleanliness, and use the same towels and utensils; that it has been propagated again and again by the direct application of the morbid secretion; and that its progress is checked by measures that provide against such accidental application, and by separating the diseased from the healthy.

On the other hand, it has been contended that the disease is nothing more than an extreme degree of catarrhal ophthalmia; that the peculiar conditions of the atmosphere in Egypt and other hot countries, where it is prevalent, are enough to account for it; and that when troops are disbanded, they do not give the disease to their friends and families all over the country, but that, on the contrary, the dispersion of the sick in this way is the most effectual mode of stopping the disease.

To these arguments the proper answer is, that the same difficulties meet us in respect to some other diseases which are acknowledged by all persons to be strictly contagious.

My own creed upon this matter is, that the disease may, and often does arise, independently of contagion, from the agency of ordinary causes of inflammation; and that having so originated, it acquires contagious properties, which develop themselves only under circumstances that favour the propagation of most of the contagious complaints.

Gonorrhœal ophthalmia.—I shall next advert to purulent ophthalmia as it is observed to occur, in the adult, in connexion with *gonorrhœa.* If we look to the mere phænomena presented by the inflamed eye, we find nothing to distinguish the gonorrhœal from the Egyptian ophthalmia. Taking the average of a large number of cases, the gonorrhœal is the severer form of the two, and runs the more rapid course. It is said, also, that the inflammation usually commences on the lids in the Egyptian variety, while it attacks the whole conjunctiva at once in the gonorrhœal. But comparing individual instances, these mere differences, and slight differences too, in degree and situation, will not help our diagnosis.

But other circumstances may guide us. If a patient presents himself with severe purulent ophthalmia, who has not been exposed to any of the known atmospheric causes of that disease, and at a time when purulent ophthalmia is not prevailing as an epidemic, and if this patient have a clap, we may conclude that we have to deal with a case of *gonorrhœal* ophthalmia; and this conclusion will be farther strengthened if the disease affects one eye only. For what, through the lack of any better nomenclature, I am constrained to call *Egyptian* ophthalmia, seldom restricts itself to a single eye. Dr. Vetch says, "there is but one case in a thousand in which one eye only becomes affected." Walther observes that contagious ophthalmia almost always appears in both eyes together, but not in the same degree; and Eble (another German author) states that the contagious ophthalmia has not confined itself to one eye in any instance These round assertions require, however, some qualification; the nurses, whose cases I quoted in the last lecture, from Sir Patrick Macgregor's paper, suffered each in one eye only. On the other hand, gonorrhœal ophthalmia mostly, but by no means always, *is* limited to one eye. In Mr. Lawrence's instructive book *On the Venereal Diseases of the Eye*, he mentions fourteen cases of gonorrhœal ophthalmia. In nine of these, one eye only was inflamed.

It is always a matter of some interest to make out whether the disease has or has not any connection with gonorrhœa; even though we may gain nothing, in respect to the treatment, by the distinction.

Purulent ophthalmia has been said to be connected with gonorrhœa in three several ways: 1st, by direct contact of the gonorrhœal discharge from the urethra with the conjunctiva; 2d, by metastasis of the inflammation from the urethra to the eye, without any such contact of matter; and 3d, independently of either of these ways: *i. e.* purulent ophthalmia has been supposed to occur in connection with clap, just as ulceration of the throat is apt to occur in venereal diseases.

Now the two last of these three modes of origin are more or less questionable; the first is certain.

Very odd speculative opinions are apt to possess themselves of the minds of medical as well as of other philosophers. Some who believe that the disease is communicable by direct contact of gonorrhœal matter to the eye, yet hold that it must come from the urethra of another person; that the Hudibrastic aphorism is true, "no man of himself doth catch." Dr. Vetch seems to have fallen into this opinion through the very common mistake of drawing positive conclusions from negative experiments. He had known a hospital assistant who, "with more faith than prudence," conveyed the matter of gonorrhœa to his eyes, with impunity. He states also the converse experiment: a soldier in a very advanced stage of Egyptian ophthalmia, attempted to divert the disease from his eyes by applying some of the matter they were discharging to the orifice of his urethra: no effect followed this trial. But in another case the matter taken from the eye of one man, labouring under purulent ophthalmia, was applied to the urethra of another man; and inflammation commenced there in thirty-six hours, and he had a very severe attack of gonorrhœa. Some persons, judging from such cases as this, and from the similarity of the discharge in the two diseases, "have gone the length of concluding (according to Dr. Mackenzie) that gonorrhœa has been *originally* an inoculation of the urethra by the matter derived from the eye in the Egyptian ophthalmia; whilst others are of opinion that this last disease is nothing else than the effect of an inoculation of the conjunctiva with matter from the urethra in gonorrhœa."

To satisfy you that a person may "catch" the complaint from himself and from others, it is right that I should bring before you one or two well-marked cases.

It is a common persuasion, among the lower classes, that to bathe the eyes in human urine is good for the sight. This piece of practice has cost several persons their vision. A gentleman belonging to the class mentioned to me the other day two cases of purulent ophthalmia so produced, which he had seen among Mr. Guthrie's patients at the Ophthalmic Hospital. In one, a young woman, not so healthy as she ought to have been, used her own water; in the other, an older woman, for what reason it did not appear, preferred her husband's to her own. Mr. Lawrence alludes to several similar cases. He details an instance also, in which partial sloughing of one cornea occurred; the disease having been caused by the patient's wiping his eyes with a towel soiled with the gonorrhœal discharge from his own urethra. But one of the neatest and most conclusive examples of the production of the disease in this way has been furnished by Dr. Mackenzie. A patient was brought to him from the country with his left eye violently inflamed and chemosed, and discharging a large quantity of purulent fluid; the lower lid everted, and the cornea totally opaque. Thirteen days before, this man, who had then a profuse gonorrhœa, but whose eyes were perfectly well, while stooping down and shaking away the discharge from his penis, had a drop of it flung fairly into his left eye. Violent inflammation immediately set in; was confined to the eye that was thus inoculated, and produced the results just mentioned: the gonorrhœa going on just as before.

Numerous authentic cases have been recorded of gonorrhœal ophthalmia produced by the application to the eye of gonorrhœal matter from another individual. Mr. Wardrop met with the following example. An old lady went into the dressing room of her son, who had gonorrhœa, and washed her face with a towel which he had recently been making use of. Purulent ophthalmia quickly supervened, and destroyed the eye in a few days. Delpech mentions the instance of a young and healthy woman, who bathed her eyes with goulard water, by means of a sponge which had been used by a young man who had a clap: violent inflammation soon arose, and the sight of one eye was lost. Several cases of purulent ophthalmia have been observed in laundresses, who had been employed in washing linen foul with the discharge of gonorrhœa.

Mr. Lawrence seems to be of opinion that purulent ophthalmia is not a very frequent consequence of the application of the urethral discharge to the eye of the same person. "When we consider (he says) how this matter is diffused over the linen of patients, both male and female, how often the fingers must be smeared with it, and how inattentive to cleanliness the lower classes are, we cannot help concluding that the gonorrhœal discharge must be *often* applied to the eyes of the same individual; yet gonorrhœal ophthalmia is comparatively rare." Dr. Mackenzie, on the other hand, thinks that the application of the matter to the eye is seldom made. "The instinctive closure of the eyelids (he observes) when the finger approaches the eye, making it actually difficult for a person to touch his own conjunctiva, unless with one finger he draws down the lower lid, and intentionally applies another finger to the eye, will serve in some measure to explain the rarity of this kind of inoculation."

It has been noticed that women are much less frequently the subjects of gonorrhœal ophthalmia than men.

Does gonorrhœal ophthalmia ever occur by metastasis? This question does not admit of a positive answer. Practical men are divided in opinion on the subject. In the majority of cases of gonorrhœal ophthalmia, we are unable to trace any application of the urethral discharge to the eye, either from the same or another individual. Yet it does not follow that no such application took place. The German and Italian writers believe in metastasis. "In all the instances (says Beer) which I have seen, this ophthalmia has occurred in young, plethoric, robust, and truly athletic men; and it has always taken place in a very short time, generally in a few hours, after the suppression of gonorrhœal discharge from the urethra." Mr. Lawrence never knew the urethral discharge stop upon the coming on of the ophthalmia; it has generally diminished, but in some instances has continued as copious as before. He seems to regard the occurrence of the ophthalmia as analogous to those successive attacks of distant parts that are common in gout and rheumatism. Dr. Mackenzie evidently doubts the occurrence of metastasis at all in this disease, and is inclined to refer all the cases in which it has been alleged, to inoculation, or to an accidental concurrence of purulent ophthalmia and gonorrhœa in the same person.

The occurrence of purulent ophthalmia as a part of the gonorrhœal disease, independently of inoculation and of metastasis, seems to me extremely problematical. The eye is well known to suffer, as well as other organs, in the secondary forms of syphilitic diseases, but the conjunctiva is not the part that is attacked. I have never seen nor heard of any satisfactory example of purulent ophthalmia alternating with gonorrhœa, where the possibility of inoculation was excluded. And, upon the whole, my own opinion (you will take it for whatever it may seem worth) is against the existence of this alleged form of purulent ophthalmia. Whether it exists or not is of very little consequence in regard to the main question; namely, what is the proper mode of *treating* the *purulent ophthalmia of adults?*

Now the two main points to consider, so far as respects the treatment, are—first, blood-letting; and secondly, the application of strong astringents to the inflamed membrane.

Blood-letting has been carried to a very great extent in this disease, or in *these diseases*, if you choose to consider the Egyptian purulent ophthalmia and the gonorrhœal purulent ophthalmia as two different inflammations. Its effects have not been very decisive or satisfactory; indeed, we could hardly expect that they would. In the first place the inflammation is so rapidly destructive, that in many of the worst cases, irreparable mischief is done before the patient applies for medical assistance. In forty-eight hours, or a little more, Mr. Lawrence tells us, the affection may have proceeded to such an extent as to be beyond our control. Of course this reason for the want of success is equally applicable to every remedy that has been, or could be, proposed. But independently of this, even when the disease is seen and submitted to treatment in its very beginning, we should have the less confidence in the power of general blood-letting to control it, for these two reasons: that the part affected is a *mucous membrane;* and that there is *so little constitutional sympathy* with the local inflammation. Free venesection *tells* most upon inflammation, when it is attended with fever and a hard pulse, *i. e.* with increased action of the heart; which the abstraction of blood tends to abate. It is also a matter of experience, that general bleeding has more influence over the inflammation of serous and fibrous membranes than over that of the mucous tissues. Accordingly, though bleeding has been even lavishly employed in purulent ophthalmia, it has too often disappointed the practitioner. There is one lesson, however, to be learned from copious blood-letting in this disease, even when it fails of its object. It clearly demonstrates what may be hoped for, by having recourse to that measure in internal inflammations. "You see a patient (says Mr. Lawrence, who has both had and used freely, very numerous opportunities of putting this remedy to the test), "you see a person with his eye bright red, and very painful; he cannot face the light, and tears gush out, with great suffering, if he attempts to do so. You bleed to fainting, and immediately the capillaries are emptied, so that the organ resumes its natural paleness; the pain is gone, the eye is opened without difficulty, and the full influx of light can be borne without an uneasy sensation. For the time the part has passed from violent inflammation to a nearly natural state. With the restoration of the circulation the inflammation will recur after this temporary suspension; but its violence is diminished, and it often gradually abates." Mr. Lawrence is here speaking of acute inflammation affecting the textures of the eye generally, and not of purulent ophthalmia in particular; but I am desirous that, in passing, you should take notice of this direct effect of bleeding to syncope, upon the capillaries of the eye, because it teaches us what the same expedient may do for the capillaries of any other *internal* part, which we cannot *see*, when that part is attacked with inflammation. In purulent ophthalmia, however, if you trusted to bleeding *alone*, you would often reduce your patient to a very dangerous state of weakness, and after all fail of your mark. Dr. Vetch bears strong testimony to the usefulness of blood-letting when freely employed in the early stages of Egyptian ophthalmia; and certainly it ought never to be neglected. In the very onset of the disease, it will aid the local expedients which I shall presently mention; and if the patient be not seen till the globe of the eye is invisible for the swelling, the propriety of general bleeding will be still farther indicated by the occurrence of throbbing and circumorbital pain, returning in nocturnal paroxysms; for this symptom denotes that the inflammation has descended deeper than the conjunctiva. The bleeding should be performed in the way I formerly spoke of as being required in serious inflammation: the patient should be bled from the arm, in the upright position, till fainting is about to ensue, or the pulse begins to falter. You will do more towards obtaining safety for your patient's vision in this way, and at less expense of his strength, than by bleeding him many times to a smaller amount. The bleeding *ad deliquium may* require to be once or twice repeated, and when the patient begins to rally from his faintness, from twelve to twenty-four leeches may often be applied with advantage; *round* the eye, and not *upon* the tumid lids, where their bites are apt to add to the existing irritation, and to fester. You had better bleed your patient from the arm, and not from the jugular vein, or the temporal artery, for reasons which, as I have fully stated them already, I need not now repeat.

But of late years, more reliance has been placed by many practitioners, upon local stimulants, for checking this horrible malady, than upon general or topical bleeding. Dr. Vetch strongly recommended the insertion of *undiluted liquor plumbi acetatis;* and Mr. Briggs, in his translation of a work of Scarpa on the eye, advised the introduction of a very minute quantity of the oil of turpentine between the eyelids. But Mr. Guthrie has the merit of having applied, in its full extent, this principle of curing conjunctival inflammation, even in its severest forms, by stimulant and astringent substances. I told you, when speaking of catarrhal ophthalmia, that Mr. Melin and Dr. Mackenzie treat that complaint by a wash, made by dissolving four grains of lunar caustic in an ounce of distilled water. I might have added other authorities in favour of the same kind of practice. Now Mr. Guthrie treats purulent ophthalmia on the same principle, but with a much larger dose of the nitrate of silver. The greater intensity of the disorder is met by increasing the strength of the remedy. He considers it to be a local disease of a peculiar character; and, acting upon the aphorism of John Hunter (an aphorism, however, which requires some qualification) that two diseases or actions cannot go on in a part at the same time, he proposes to set up in the inflamed conjunctiva a new action, which shall supersede the original disease, and create another that is more manageable. In this point of view Mr. Guthrie's *ratio medendi* agrees with that of Hahnemann, about which there has been so absurd a noise made of late. I have never had the advantage of seeing Mr. Guthrie's plan tried, but from all that I have heard of it, I believe it to be a valuable discovery. *A priori*, we should expect that the caustic application would add to the existing mischief, and destroy all chance of saving the inflamed eye. But it is not so. Even Mr. Lawrence who was, I have reason to think, formerly very sceptical on this point, appears to be so no longer. In his treatise on the Venereal Diseases of the Eye, he uses this cautious language. "Destructive or injurious consequences have so frequently resulted under the usual management of this disease (he is speaking of gonorrhœal ophthalmia), that I should certainly employ the local astringent, if I met with a case favourable for the trial; *i. e.* where the affection had not extended beyond the conjunctiva. Blood-letting might be resorted to at the same time; in most cases, however, our aid is not sought until the cornea has become affected, and it is therefore too late for the astringent plan." But he subsequently added a note, to the effect that after the statement I have just quoted was written, he had employed the caustic solution in two cases of conjunctival inflammation with the best result.

Mr. Guthrie's plan, therefore, you ought to be acquainted with. After many trials, he has arrived at the conclusion that the best appliance, in this formidable complaint, is an ointment, made by mixing ten grains of the nitrate of silver, reduced to an impalpable powder, with a drachm of hog's lard. This is what he calls his *ten grain ointment.*

Before applying it to the diseased eye, the discharge must be well cleansed away by a solution of alum; then the ointment having been inserted beneath the lids, they are to be moved freely up and down, so that the whole conjunctiva gets its due share of the remedy; and that it has done so is shewn by its turning white. If the surface does not turn white, the ointment has not been sufficiently applied, and will not answer the purpose. If we wish to be quite sure, he says, we turn out the eyelids, and rub the ointment on them. This application gives pain, which lasts for half an hour, or an hour, or more. "Warm narcotic fomentations may be employed to relieve uneasiness, and opium given to allay pain, and to obtain sleep; while a solution of alum, in the proportion of a drachm to a pint, should be injected from time to time into the eye, to clear it; but should the patient sleep, he must not be disturbed. A mild ointment may be applied to the edges of the lids at night, to prevent their sticking together. The next morning the discharge is again to be removed, and the ointment to be re-applied; for on no account should the action we are desirous of exciting be allowed to cease." Of course Mr. Guthrie means it is not to be suffered to cease prematurely. This with free, but not excessive venesection, is the substance of his peculiar mode of treating purulent ophthalmia; and it appears to have been eminently prosperous in his hands. I have been informed, by one of yourselves, that purulent ophthalmia has been successfully treated, on a large scale, in Manchester, by applying the nitrate of silver, in substance, to the surface of the conjunctiva; that this gives less pain than the ten grain ointment, though perhaps it may require to be oftener repeated.

I say I have never seen this method of Mr. Guthrie's carried into effect; but after what I have myself witnessed of the intractable and destructive nature of the disease under the treatment ordinarily adopted before his ointment was devised, I will say also that were I so unfortunate as to be attacked with severe purulent ophthalmia, I should desire to have the caustic applied as soon as possible, and to be freely bled at the same time.

There are some minor points in the treatment that require a cursory notice only.

Some persons, and Mr. Guthrie among the rest, recommend the exhibition of *mercury,* so as to affect the gums. Now I believe that mercury is quite useless in this complaint; and if useless, mischievous. The disease is too rapid to be overtaken by the mercury, and if you could obtain the specific influence of that mineral in time, *i. e.* before any of the destructive effects of the inflammation were accomplished, you would do no good thereby. This is not the kind of inflammation over which mercury exercises any useful control. Mr. Lawrence tells us that he has seen both the ordinary purulent, and gonorrhœal ophthalmia proceeding apparently unchecked, under the full mercurial action.

Practical men are not agreed about the propriety of scarifying the conjunctiva when it is swelled and elevated by chemosis. Mr. Lawrence objects to it, as likely to increase the local irritation; a disadvantage not compensated by the quantity of blood discharged from the divided vessels. Dr. Mackenzie recommends it, stating that the incisions will bleed copiously, and greatly allay the symptoms. Who shall decide in this puzzling discrepancy of opinion? Mr. Guthrie's caustic ointment would, I presume, supersede any other meddling with the inflamed surface. But when the question happens to lie between scarification and no scarification, I should give my vote *for* scarifying; not because I think any useful depletion of the *blood-vessels* could be brought about by that measure, but because, if properly performed, it would evacuate the serous effusion from the cellular tissue between the conjunctiva and the sclerotic, which effusion constitutes the chemosis, and hastens, if it does not cause, the sloughing of the cornea, by the mechanical pressure that it exerts around it.

Are *blisters* of any use? Hear Dr. Mackenzie. "Counter-irritants are *highly serviceable* in this disease, and ought *always* to be employed. There is generally a *marked* change in the quantity and appearance of the discharge from the eye, as soon as a counter-discharge is established by blisters on the temples, nape of the neck, or behind the ears." But listen to Mr. Lawrence. "Experience does not warrant us in ascribing much efficacy to *blisters*." Now the truth is, I believe, that during the active stage of the disease, blisters are not of any use; but that in the more advanced and chronic periods, they are. Indeed, Mr. Lawrence admits that they may be regarded as auxiliary measures, and resorted to after antiphlogistic means.

I agree with the same gentleman in thinking that no reliance is to be placed, in gonorrhœal ophthalmia, upon any attempts to reproduce the urethral discharge; indeed, in most cases it is not suspended.

Although I have not mentioned purgatives, you will conclude that they form a very proper and necessary part of the treatment during the activity of the complaint.

Purulent ophthalmia of infants.—After what has already been said of purulent ophthalmia in the adult, and of gonorrhœal ophthalmia, it will not be necessary for me to take up very much of your time in speaking of purulent ophthalmia as it occurs in newly-born children.

This is a *very common* disease: it is *very serious* when neglected: it is *very easily managed* when it is seen and treated in time. These are all reasons why you should make yourselves familiar with the complaint, and with the mode of curing it. You may perhaps never have occasion to treat a case of purulent ophthalmia in the adult: you are sure to be consulted about the purulent eye of infants, the *ophthalmia neonatorum.*

The importance of the affection is apt to be overlooked by mothers and nurses; they say the baby has a cold in the eye, which will go off; and they wash it perhaps with a little of the mother's milk, or some such insignificant fluid. Meanwhile the eyelids swell, the mischief that is going on beneath them is concealed from sight, and when at last a medical man is consulted, he too often finds that one or both of the eyes has perished: the cornea has sloughed or become opaque, or protrudes, and constitutes what is called staphyloma; prolapse of the iris has taken place; or the coats of the organ have shrunk up.

The inflammation usually comes on about three days after the child is born, although it may commence later. It is confined, at first, to that part of the membrane which lines the lids. Their edges are observed to stick together when the infant wakes: there is more intolerance of light, apparently, than is suffered in the analogous disease of adults. The little patients cannot indeed tell us their sensations by words, but they express them significantly enough by keeping their eyes shut, by contracting their small brows, and by turning their heads away from the light. At length the inflammation extends to the conjunctiva that covers the eyeball, the eyelids swell, sometimes enormously: and an astonishingly copious discharge of pus takes place. By the adhesion of the edges of the lids the puriform matter is sometimes pent up, and distends the lids; and when they are separated it escapes in a profuse hot gush. The eyelids are sometimes everted during the cries and struggling of the little sufferer, and their mucous surface is then seen to be villous and shaggy, and of as bright a scarlet red as you ever saw the injected mucous membrane of a fœtal stomach. At last those fatal consequences to the eye take place which I have already mentioned. The disease, however, may continue for eight or ten days without any affection of the transparent parts of the eye; and so long as these remain uninjured, the eye is safe, provided that proper treatment be adopted.

This disease is probably much the most fertile source of blindness with which we are acquainted. It is believed to originate most commonly, if not always, in contagion. We might, perhaps, expect this, from the analogy of the severe inflammation of the same parts in adults. And it is a matter of fact, that in a very large number of cases the mother has been affected, at the time of her confinement, with some kind of vaginal discharge—leucorrhœa, or gonorrhœa; and the eyes of the children are exposed to these morbid secretions, as they are brought into the world. The circumstance of the disease commencing so regularly on the third day, is greatly in favour of the supposition that it results from inoculation of the eyes by the unhealthy fluids of the mother. The discharge from the infant's eyes has been ascertained to be highly contagious. Dr. Mackenzie mentions a lamentable illustration of this fact, which fell under his observation at the Eye Infirmary, in Glasgow. An infant and its grandfather became his patients there at the same time; the latter having been inoculated from the former. Both were so severely affected that the infant had one eye left in a state of total, and the other of partial staphyloma: while in each eye of the old man, the greater part of the cornea remained opaque, and adherent to the iris.

However, the disease certainly occurs in the infants of mothers who seem to be healthy, and who deny that they have any unnatural discharge. It may probably be brought on, sometimes, by bad management on the part of the nurse: by exposure soon after birth to draughts of cold air, or to the injurious influence of a hot and bright fire; or by the introduction of soap into the eye in the primary ablutions, or of gin, wherewith the lower classes, in some absurd persuasion of its strengthening virtues, are wont to bathe the unlucky infant's head. The disorder is observed to be most common in damp and cold weather; in low crowded places; and among the children of the poor.

One striking difference between the disease as it exists in adults and in newly born children I have already adverted to; viz. its rapid and often incontrollable progress in the former; and the facility with which it yields to suitable and timely treatment in the latter. If a child is brought to you with purulent ophthalmia, and you are able to separate the lids sufficiently to obtain a glimpse of the cornea, and perceive that it is still brilliant and uninjured, you may confidently tell the anxious mother that, with due care on her part, her child's eye is safe. If the cornea has lost its transparency, it is still within reach of recovery, but the chances are against it: if you cannot get a sight of the cornea at all, you will do wisely to give a doubtful prognosis, or even an *unfavourable* prognosis; for such is the ignorance of the vulgar (and I include both rich and poor under this phrase) that if they are not forewarned of the danger, they are very apt to attribute the blindness that ensues, to your *stuff*, as they call it.

In the severer forms and stages of the complaint, if the lids be very much swelled, and red externally, and especially if you are unable to obtain any satisfactory view of the cornea without using a degree of violence that might be hurtful, it will be right to apply a leech. It should be placed upon the centre of the tumid upper lid; and you should, whenever that is possible, stay by the little patient until the animal drops off, and the bleeding ceases; for sometimes the bleeding is difficult to stop, and must not be trusted to the care of the nurse; and the loss of blood occasioned by the bite of a single leech will often blanch the infant's skin, and make you fear that the depletion, slight as it is in actual amount, has yet been too much. The child's bowels should be emptied by a little castor-oil; and a lotion made by dissolving two grains of the acetate of lead in an ounce of water may be applied to the inflamed organ.

In less severe cases, and I believe in all cases in which you can see the uninjured cornea gleaming through the pus that bathes it, it will be quite sufficient to keep the infant's bowels open with magnesia; to apply a little lard along the edges of the lids, to prevent their sticking together; and to inject carefully into the eye, *beneath* and *between* the lids, a solution of alum; in the ratio of four grains to one ounce of water. Such, Mr. Lawrence tells us, was the treatment in 49 cases out of 50 at the London Ophthalmic Infirmary when he was surgeon to it: no other means being used than magnesia internally and the solution of alum locally: and out of many hundred instances he scarcely recollected one that suffered in any respect, if the cornea was clear when the infant was first seen. I had, for a considerable period, the advantage of watching Mr. Lawrence's patients under that treatment; and the result of it was so exceedingly and uniformly satisfactory, that I should never think of employing any other. If the eye became at length accustomed to the stimulus of the alum, a solution of the nitrate of silver, (from one to four grains in the ounce of water,) was substituted with advantage. Mr. Guthrie uses, I fancy, his caustic ointment; but I am sure that the simple and less severe plan I have been describing is quite sufficient.

Strumous ophthalmia.—There is just one more disease belonging to the conjunctiva, which I wish to bring before you; and then I shall have done with the morbid affections of this external membrane of the eye. It has received several names: sometimes it is called *pustular* ophthalmia, from the appearance of little pustules upon the surface of the organ. Dr. Mackenzie, who looks upon it as an eruptive disease, affecting the conjunctiva not so much as a *mucous membrane*, but rather as a continuation of the skin, names it *phlyctenular* ophthalmia. It has also acquired the title of *scrofulous* or *strumous ophthalmia*, from its continual occurrence in children of a scrofulous *habit*, and its very frequent association with scrofulous *disease* in other parts. It is a disorder of childhood, and it is so common a form of disorder that, of ten cases of inflammation of the eyes in young persons, nine will be of this kind. I shall call it *strumous* ophthalmia. It is a form of ophthalmia that differs in many striking points from those which we have been considering.

In the first place, it is intimately connected with the scrofulous constitution; the peculiarities of which I formerly explained. Although a disease of children, it is not a disease of infants at the breast. It is most prevalent from the time of weaning to about the age of eight. I mentioned to you, in a previous lecture, the remarkable fact, shewing the strong influence of unsuitable or insufficient nourishment in developing scrofulous disease; that when asked to prescribe for children having bad eyes, you will find, in nineteen cases out of twenty, that you have to deal with purulent ophthalmia if the child be still at the breast, and with strumous ophthalmia if it has been weaned.

The leading symptoms of this disease are, *slight* redness; great intolerance of light; the formation of little prominences or pustules on the surface of the conjunctiva; and specks which are the result of these. The complaint sometimes occurs in one eye alone, oftener in both; but then one eye is generally worse than the other. Mere catarrhal ophthalmia is apt to degenerate into this affection in scrofulous children. After seeing two or three cases of strumous ophthalmia, you cannot fail to recognise it whenever you meet with it again.

The redness has this peculiarity, that it is slight and partial. Sometimes it is altogether confined to that part of the membrane which lines the eyelids: generally a few vessels, collected into little bundles, are seen proceeding from some point of the circumference—more commonly from the angles of the eye than from any other part of the circumference—towards the cornea: the vessels are evidently superficial, often prominent. These scattered bundles of vessels (sometimes there is but one) stop when they reach the cornea, or occasionally encroach a little upon it; and where they stop, the small elevations of the membrane may be observed which are called pustules. This is the most common situation of these elevated points, just at the line of junction between the sclerotica and the cornea, or near that line. Sometimes, however, you may see one or two near the centre of the cornea. They are smaller in size when they appear on the cornea, than when they are situated near its edge.

These pimples may be absorbed, and leave behind them a temporary white spot; more frequently they break and form little ulcers. When these ulcers are beyond the cornea they are of less consequence; when they are situated upon it, they become sources of danger in two ways: they may penetrate the cornea, and let out the aqueous humour, and cause prolapsus iridis and various other mischief; or they may leave, after healing, a permanent white opaque speck, (called *leucoma*,) which, according to its size and its exact place, will interfere more or less with the vision.

The intolerance of light is a very prominent symptom of this disease, and sometimes it is really the only symptom that manifests itself. It is curious that this inability to endure a bright light bears no regular or definite proportion to the intensity of the other symptoms. It is not that the eye is painful when protected from the light; but that the access of the ordinary light of the day occasions extreme suffering; the eyelids being spasmodically closed, and the orbicular muscle in such strong, and apparently involuntary action, as effectually to resist all attempts at opening them. Children that are affected with this disease, carry it legibly written in their physiognomy. Although you cannot tell what is the actual condition of the eye without examining it, you *can* tell, as soon as you look at the patient, what is the *nature* of the inflammation under which he is suffering. The child's brow is knit and contracted, while his alæ nasi and his upper lip are drawn upwards: those muscles of the face (which happen also to be muscles of expression) are instinctively put in action, which tend to exclude the light without quite shutting out the perception of external objects; producing a peculiar and distinctive grin. In the severer cases the child will skulk all day in dark corners; or if in bed, will lie upon his face, or under the clothes; and while the light is thus kept off, he does not appear to suffer. If brought towards a window, he keeps his head down, and presses his hands or arms over his eyes. When you attempt to open his eye to examine it, a profuse discharge of scalding tears takes place: these pass partly into the nose, and excite fits of sneezing, and partly over the skin, which they sometimes excoriate or inflame; and then, frequently, pustules arise on the skin, and produce a discharge that crusts over the cheek and extends to the forehead and temples. This is called *crusta lactea*, and is very characteristic of the scrofulous habit; it occasionally spreads over the whole body.

You might suppose, from this extreme intolerance of light, that the retina was inflamed, or in danger. But it is not so. The affection of the retina is purely sympathetic, and need not of itself excite any fears about the vision of the eye. Towards dusk, indeed, in the twilight, the child can generally open his eyes, and then is quite as able to see as if he were well. Dr. Mackenzie endeavours to explain the connection of intolerance of light, spasmodic contraction of the lids, and lacrymation, even when there is but little visible redness, by the distribution of the lacrymal nerve; which, after supplying the lacrymal gland, goes to the conjunctiva, and to the orbicularis palpebrarum. We have the same set of symptoms when a bit of dirt gets into the eye, and fixes itself beneath the upper lid. When little or no redness is present, this extreme intolerance of light has been called *photophobia scrofulosa*.

With this strumous affection of the eye there are usually present other evidences also of scrofulous disease. Swelling and redness of the alæ nasi and upper lip; enlargement of the absorbent glands about the neck; eruptions upon the head; sore ears; a large and hard belly; disordered bowels; offensive breath; grinding of the teeth; and general debility. And the ophthalmia will alternate sometimes in severity with some of these other local scrofulous complaints; getting better as they get worse, and *vice versâ*.

LECTURES ON MORTIFICATION,

Delivered at the Medical Theatre of St. George's Hospital.

By Sir Benjamin C. Brodie, Bart. F.R.S. &c.

Lecture IV.—Dec. 16, 1840.

Hospital Gangrene—Actual Cautery—Mortification from Animal Poisons; from Cold; from sudden loss of Blood: from Inflammation of Arteries.

I think it worth while to point out another case in addition to those alluded to in the last lecture, in which the destruction of parts by caustic may be resorted to with great advantage. I refer to phagedenic and sloughing sores, whether they be those that occur upon the organs of generation in persons who have been exposed to syphilitic affection, or whether they be those that appear on other parts of the body, to which the term *hospital gangrene* is usually applied. The destruction of the parts by a powerful escharotic frequently seems to destroy the poison on which the phagedena and sloughing depends. The best caustic for this purpose is the concentrated nitric acid, applied so as to make a slough of the diseased surface, and extending to the parts just beyond it. The destruction of them to a greater depth than this is unnecessary. This method of treatment was first had recourse to, if I remember right, by Mr. Welbank, who wrote a very interesting paper on the subject.

I have taken this opportunity of speaking of some of the principal cases in surgery to which the destruction of parts by caustic is applicable; but you will find a great number of others in practice in which you may employ them with advantage. I need not, however, occupy your time further on this part of our subject. The observations which I have already offered will be easily applied to other cases; and will, I trust, be found sufficient to initiate you in this department of surgery.

Destruction of parts by heat:—the actual cautery:

The organization of the living body may be destroyed by the application of intense heat. A moderate degree of heat does not at once destroy vitality: it produces a peculiar kind of inflammation, with vesication of the skin; but a great degree of heat destroys at once the vitality of the part to which it is applied. Of course, the action of heat is altogether chemical. No part will live if its organization be destroyed; and heat destroys the organization. There is one thing worthy of notice respecting the slough made by a hot iron: it is separated sooner than the slough made by caustic—that is, the two sloughs being of the same extent, that which is made by a hot iron is separated at an earlier period than that made by caustic. The reason of this is sufficiently evident. If you look at the injured part there is a much greater degree of inflammation round the slough made by the former than there is round that made by the latter.

The destruction of a part by the application of heat to a small extent is attended with no constitutional disturbance; but if it be to a great extent, the constitution is affected in proportion to the quantity of parts destroyed. This, however, is remarkable—that where on the surface of the body there is an absolute destruction of the skin by intense heat, the constitution often suffers, in the first instance, much less than if a slighter degree of heat had been applied to the same extent of surface. You will have frequent opportunities of verifying this observation, if you watch the comparative effects of burns and scalds in the cases admitted into the hospital. I have been surprised sometimes to find, where a great deal of skin has been completely destroyed, how little the constitution has resented the injury immediately after it had been inflicted; but it resents it enough afterwards, and when the period arrives at which the slough should be thrown off, then the general system suffers. I remember a lady who had both her arms burned, so that nearly the whole skin of each upper extremity was completely dead; yet her constitution seemed almost unconscious of the shock. When, however, the time came, at which the slough should have been separated, she began all at once to sink, and died in a day or two.

The actual cautery may be used for surgical purposes on the same principle as caustics; and there is one occasion on which the former will certainly do what the latter will not effectually accomplish—it will stop hæmorrhage. In some cases of dangerous hæmorrhage from a great quantity of small vessels, or from large vessels, which cannot be secured on account of their being deeply seated, the actual cautery is very serviceable. I have often found it useful on these occasions; but otherwise I have not much had recourse to it. I have indeed employed it on other occasions formerly, but I did not find it do any thing which caustics would not have done as well or better, and it is much more alarming, much more frightful both to the patient and to bystanders. It was the habit of surgeons here fifty or sixty years ago to use the actual cautery to a great extent, and it appears to be one of the many proofs of the advancement of English surgery that we have got rid of this rude piece of farriery.

Mortification from animal poisons.—I

mentioned in a former lecture that I had seen a man who died of extensive sloughing of the cellular membrane, after the sting of a bee. I stated that I attributed this chiefly to his being of a bad constitution, though perhaps something might be attributed to the influence of the animal poison. My reason for making the latter observation was this: there are certain animal poisons which have the effect of producing mortification, especially of the cellular membrane. There is a work of the Abbé Fontana, in which he describes a great number of experiments on the smaller animals, made with the poison of the viper, and the principal local effect that he observed was gangrene of the bitten limb. When I was first assistant-surgeon, a man was brought into this hospital under the following circumstances. A rattle-snake was exhibited as a sight in Piccadilly, and this poor fellow went to see it. He was a carpenter, and having dropped his rule into the rattle-snake's cage, he introduced his hand to take it out, and the snake bit him. He was immediately brought to the hospital, in a state approaching to that of syncope, with violent pain extending up the arm. The next day the whole arm was swollen, and the skin looked purple: there were vesications upon it as if sloughing were going on in the subcutaneous cellular membrane. The man lingered here for nearly three weeks, and then died. At the time of his death there was extensive mortification of the skin of the forearm: and the whole of the cellular membrane, from the bitten finger up to the shoulder, was in a state of slough. From the appearance in the beginning there could be no doubt that the sloughing process of the cellular membrane had begun immediately after the injury was received. The skin itself seemed to have mortified only because it lay over the dead cellular membrane; and what is curious, the muscles underneath were not at all affected. The poison seems to act, as far as its local operation is concerned, especially on the cellular membrane. Not only was this proved by this particular tissue sloughing so extensively, but it was also proved by this circumstance, that within an hour after the bite extravasations of blood (ecchymoses) might be traced in the cellular membrane as high as the shoulder, from thence downwards on the side of the chest as low as the false ribs, presenting altogether a very singular appearance. The poison, indeed, seemed to operate on the cellular membrane neither in the direction of the nerves, nor in that of the absorbents, nor in that of the blood vessels. In fact, it is difficult to explain the local effects produced by this virulent poison from the anatomical structure of the parts, or on any known physiological principles. I am in possession of the notes of an experiment made by the late Mr. Ewbank (who died some years ago, having been my colleague in the hospital) with this same rattle-snake. A rabbit bitten in the shoulder became affected by the poison in a few minutes, and died at the end of three-quarters of an hour. Even in this short space of time the cellular membrane, to a great extent, was in a state of slough, although the skin and the muscles were not affected. There are several other animal poisons that seem to operate in the same manner.

I have only one practical observation to make on these cases, namely, that you may prevent the extension of the mischief produced by the animal poison, by the application of a ligature round the limb above the bitten part. It seems to stop the influence of the poison upon the cellular membrane, and at the same time to prevent the poison entering into the circulation and affecting the general system: for in these cases, besides its local operation, the poison has a powerful influence on the constitution. The constitutional symptoms, however, are not to our present purpose, and therefore I shall not describe them.

Mortification from exposure to cold.—As parts may be killed by excessive heat, so they may be killed by excessive cold. You might suppose that cold would produce the death of a part in the following manner: that it would freeze it, and that the fluids being frozen, and to a certain extent expanded in the act of freezing, the organization of the capillary vessels would be destroyed, and death of the part ensue in the same manner as in plants and trees, which are killed by a severe frost. Two or three years ago, when there was some very mild weather, like that of spring, about Christmas, in many places the sap began to circulate in the evergreen trees. But this premature spring was followed by some days of most intense cold. The sap was suddenly frozen in the vessels of the alburnum, and as it froze it expanded and burst the vessels, and killed the trees by destroying their organization. I said that you might suppose at first that death from cold is produced in a similar way in the animal body. I cannot say that such never is the case, but I do not find that that is the way in which it usually happens. When a part is frost-bitten it is not in general killed at once, but after being exposed to a warmer temperature, it inflames, and the inflammation immediately terminates in gangrene. I imagine that the influence of cold upon the animal body is scarcely ever so instantaneous, as at once to freeze the fluid in the vessels; there is almost always time for these to contract and become emptied of their blood before the parts are frozen. You may see this in your own fingers, when they have been exposed on a cold day, they become quite shrunk and pale, as if there were no blood in them, and may remain in this state for a very long time. If in a case of frost-bite, you go to the fire to warm the affected part, there is a sudden re-action, inflammation is set up, and mortification follows. In this country we have very little experience of these cases. Every now and then, indeed, a patient is brought into the hospital who has lost a part of his foot, perhaps two or three toes, in this manner, but not until some time after the mischief was done, and we therefore do not see the process by which the death of the part has been produced. There are, however, abundant accounts of death from frost-bite, written by persons who have been in climates colder than ours. I may refer especially to a work by M. Beaupré, a French physician, who followed the Emperor Napoleon in the Russian campaign. By his account it would appear that parts may be under the influence of cold for a great length of time, so as to be completely deprived of sensibility, and yet, with prudent management, may recover perfectly. He states that he has frequently had his foot benumbed while riding on horseback, so that for a long time it has been devoid of sensation, and that he has got off his horse without knowing whether his feet touched the ground or not; but by rubbing them with snow, and thus very gradually restoring them to a proper temperature, the evil consequences of frost-bite have been prevented.

Mortification from sudden loss of blood. —As the circulation of arterial blood is necessary for the maintenance of life, so whatever for a considerable time prevents a part of the body from being supplied with blood, will produce mortification. A very copious blood-letting, for instance, will under certain circumstances give rise to it. I will mention a remarkable example which fell under my observation some years ago, in a case which I attended with the late Dr. Babington. The patient, a medical officer in the East India Company's service, had gone out to dinner, and drunk an immense quantity of wine, so that he got exceedingly tipsy. This was in the City. He staggered up Holborn as well as he could, and found his way into a chemist's shop. Here he was mad enough to ask the person who stood behind the counter to bleed him, and whether this person was tipsy or not also I do not know, but however that might have been, he certainly did bleed him: and not only that, but these two blockheads agreed that he could not be bled too freely; and so this drunken man lost, I believe, not less than three pints of blood. He then became exceedingly ill, was carried home in a coach, and the next day both his feet were mortified; the toes and feet up to the instep. We gave him wine and nourishment; he recovered, the sloughs separating, the dead bones coming away, and the stumps of the feet healing.

Mortification from inflammation of arteries. — Any thing which obstructs the passage of blood completely through the arteries of a limb will, of course, produce mortification. A single ligature placed on an artery does not do it, because it stops only the main trunk at one point, and there are anastomosing vessels communicating with the artery above and below the ligature, which are sufficient to carry on the circulation. But supposing that instead of one ligature you were to put on half a dozen, at different distances from each other; in the space of six or seven inches of the artery you would not only render the arterial trunk, but the anastomosing branches also, incapable of carrying on the circulation, and this would produce gangrene. I imagine that such a thing never was done by a surgeon upon the human subject, but something corresponding to it may happen from disease. As long ago as when I was house-surgeon in this hospital, I went to see a poor man at Brompton, under the following circumstances. On a very hot summer's day in August, he was walking in the fields, when he felt a sense of pricking, numbness and weight, as he described it, in both lower extremities. It was with great difficulty that he crawled home. In one of the lower extremities these sensations subsided, but not so in the other. On the following day the whole of one leg, and the thigh as high as the middle, were in a state of mortification. The mortification never extended afterwards, no vesications formed on the foot, it was not swollen, and no part became putrid except just a little in the middle of the thigh where there was a great mass of soft parts. The limb dried, the skin assuming a brownish colour, being at the same time hard and semi-transparent, so that the white tendons could be seen shining through it. It was, in fact, what has been called a case of dry gangrene. The poor fellow went on very well for four or five weeks, without any bad symptoms, during which time the separation of the dead parts in the thigh had made considerable progress. But it seemed to be more than nature could accomplish to complete the work. His powers at last began to fail, and he died at the end of six weeks from the commencement of the attack. I examined the body, and found marks of inflammation every where about the principal artery and vein of the limb. From the bifurcation of the iliac trunk down to the middle of the thigh, the artery was obliterated, being completely filled with coagulated lymph evidently effused from inflammation: closely adhering to the inner surface, but with some admixture of red coagulum. The vein was filled with lymph, and obliterated in the same manner as the artery. There had been inflammation of the sheath of the vessels, in consequence of which the artery and the vein adhered closely to each other and to the surrounding parts, so that the dissection was somewhat difficult. I suppose that the nature of the case is plain enough. There had been inflammation of the artery and the vein, and the obliteration of the artery was to so great an extent as to cut off the supply of blood, not only through the trunk but through the anastomosing branches. Some years ago I was called with Sir Charles Clarke, and Mr. Bryant, of the Edgeware Road, to see a similar case, which terminated more fortunately. A lady, without any apparent reason, was seized all at once with pain in one groin, and down the anterior and inner part of the thigh, with great tenderness in the course of the femoral artery. When I saw her, which was not till some days afterwards, the whole leg below the middle was in a state of mortification. There was no œdematous swelling of the foot, and no vesication. She had still pain in the course of the femoral artery, which was aggravated by pressure; and the pulse could not be felt either in the groin or lower down. Considering the resemblance of this case to the one which I have just mentioned, I could entertain no doubt that the disease was similar, and that the mortification of the leg was the consequence of arterial inflammation. After some time the soft parts began to separate, until at last the lower part of the leg and the foot remained attached to the rest of the limb, merely by the tibia and fibula. I sawed through these bones, after which the parts gradually healed, forming a very fair stump. Perhaps you will ask why I proceeded in this manner, instead of amputating the limb at once. The fact is, that I remembered a case published in Saviard's Observations on Surgery (Saviard was a celebrated French surgeon in the early part of the eighteenth century), which was very similar to this which I have just mentioned, and in which he amputated the thigh. In performing the operation he was surprised to find that no blood flowed from the stump, in consequence of the vessels being obliterated. The parts divided in the operation had not a sufficient supply of blood for the healing process. The stump mortified as the leg had done before, and the patient died. It appeared to me, after the evidence afforded by this case, that it was desirable to avoid an operation if possible. At the same time I ought to mention, that in the second volume of the Medical Observations and Enquiries there is an account of a case, apparently of the same kind, in which amputation was successfully performed, the stump healing favourably.

One of the circumstances most deserving of notice in these cases is that the limb mortifies to a certain extent, and that then the mortification stops. This, however, is easily explained. We know that the obliteration of an artery must prevent the supply of blood to certain parts, but no further. Another peculiarity is, that the parts become dry, hard, horny, which condition of them has given rise to the name of dry gangrene. This is also easily explained. If mortification be the result of inflammation or of venous obstruction, there is always an effusion of serum before the parts completely die, in the form of vesication of the skin, and œdema of the cellular membrane; and then, when the parts die, being infiltrated with serum, they readily become putrid. But here the supply of blood is cut off; the blood is prevented from entering the limb, so that there can be neither vesication nor effusion of serum into the cellular membrane; and the dead parts dry readily from the absence of moisture. M. Dupuytren has described the gangrene that occurs in old age as the result of arterial inflammation, but I am quite satisfied that he is mistaken on this point. Gangrene from arterial inflammation is a comparatively rare disease, and may occur at any period of life; whereas, the gangrene of old age arises, as repeated dissections have enabled me to determine, entirely from other causes. I shall offer some observations on this kind of gangrene in the next lecture.

ON
PHLEBITIS OF THE CEREBRAL SINUSES,
AS A RESULT OF PURULENT OTORRHŒA.

By James Bruce, M.D., Liverpool,
Formerly House Surgeon to the Glasgow Royal Infirmary.

[Concluded from page 613.]

The following case is the first in which I observed inflammation of the lateral sinus in connection with purulent otorrhœa; but it occurred unfortunately at a period when my attention was not particularly directed to this department of pathology.

Case II.—Thomas Watson, æt. 27, seaman, was admitted into the Glasgow Fever Hospital on the 13th of August, 1835, as a case of continued fever. He had been subject to a purulent discharge from the right ear from a very early period of life. The discharge had ceased about a week before he entered the hospital, and its suppression was followed by rigors, headache, and the general symptoms of pyrexia. He experienced, shortly after, a severe pain in the right mastoid process, and an abscess speedily formed in that situation; it afterwards burst, and gave exit to a quantity of fœtid sanious matter. On admission pulse was 80, strong and intermitting; tongue brown and dry; appetite impaired. Complained of violent pain in occipital region. On the 16th pulse 96, strong. Pain of occiput relieved. Very drowsy, but when spoken to he answers questions correctly. 17th, had retention of urine, but to-day it is voided involuntarily. On the 19th pulse rose to 104; the skin and conjunctivæ were of a yellow tinge, but this disappeared on the following day. He continued much in the same condition, pulse varying from 120 to 68, till the 28th, when the headache became more intense. His head was leeched, and a blister was applied to the occiput. Next day pulse was 116, feeble; skin cold and livid. Appeared to be in a state of stupor bordering on coma. Died next day.

Inspection.—Vessels of brain unusually congested. Each lateral ventricle contained about two ounces of seropurulent fluid. The right ventricle was lined with a thin coating of coagulable lymph in the form of a membrane, and of a greenish yellow colour. Right lateral sinus, from its junction with the longitudinal sinus to its exit from the cranium, was filled with purulent matter, and lined with a false membrane of uniform thickness; the groove in the bone in which it is lodged being rough and porous. On making an incision into the neck, behind the angle of the jaw, on right side, a quantity of puriform fluid escaped, evidently from the cut extremity of the internal jugular vein. No affection of the thoracic viscera. Liver and spleen softer than natural. Mesenteric glands enlarged.

The case just related sufficiently illustrates the connection which exists between chronic otorrhœa and disease of the lateral sinus, but it is unfortunately defective in several important points relating to the pathology of phlebitis. The internal ear was not examined, and the state of the sinus at the torcular Herophili, as well as that of the jugular vein at its termination, was not ascertained; so that we have no means of determining whether, in this instance, the pus communicated directly with the current of the circulation, or was separated from the blood by an obstructing coagulum.

When the foregoing cases came under my observation I was disposed to believe that they belonged to a class which had not been previously alluded to by pathological writers. This impression has since been removed by a careful examination of the works of the principal writers on diseases of the brain; but I am more than ever strengthened in the conviction that too little attention has hitherto been paid to this singular affection of the sinuses of the dura mater. In most of the cases on record the inflammation of the sinuses appears to have been idiopathic, or to have been the result of a previously existing disease of the meninges, or of the brain itself. Abercrombie was perhaps the first to point out the connection of this lesion with a primary affection of the ear, as we find a case of this description in one of his papers on Diseases of the Brain, published in 1818[*]. In the Révue Medicale for 1825, there is an elaborate article on Phlebitis, by M. Ribes[†], of Montpellier, in which he relates a singular case of inflammation of the superior longitudinal sinus, evidently of a chronic nature, complicated with malignant disease of the brain; and this case is afterwards referred to by Dance[‡] in his researches on phlebitis, as the only example of the disease on record[§]. In the following year a short paper by M. Gendrin[‖], entitled "sur la Phlébite Encéphalique," appeared in the Révue Médicale; it contained an analysis of the cases related by Abercrombie and Ribes, and the history of a case of phlebitis of the middle cerebral vein, in conjunction with ramollissement of the brain, where the patient, a lady, had died hemiplegic about a fortnight after accouchement. In the same year Dr. Hooper published his work on the "Morbid Anatomy of the Brain," which contained a coloured plate representing both lateral sinuses laid open, filled with pus, and lined with a false membrane. A communication existed between the left lateral sinus and a carious opening in the temporal bone; and the author, who neglected to give a history of the case, expresses his belief that the perforation of the bone was effected by the purulent matter, which has always a tendency to form an outlet for itself. In 1829 a memoir on the "Diseases of the Sinuses of the Dura Mater *" was read before the Académie Royale de Médecine of Paris, by M. Tonnelé, in which the author states that two different kinds of concretions may be formed in the sinuses during life; one of these, apparently identical with the fibrinous polypi found in the right cavities of the heart, sometimes contains central deposits of puriform matter; whilst the other species bears a close analogy to the false membranes found in other parts of the body, and may exist either with, or without, suppuration. He relates several cases of the latter form of the affection, in none of which does there appear to have been any complication with disease of the ear. In one case, where the right lateral sinus was full of pus and lined with false membrane, the affection appeared to result from an extensive ulcer on the occiput; whilst in another, where the patient, a child, died comatose on the sudden disappearance of an exanthematous eruption from the scalp, a superficial ramollissement of the brain was found in conjunction with a suppurative phlebitis of the superior longitudinal sinus and veins of the pia mater. The cases, however, are briefly reported, and the post-mortem appearances imperfectly described. Since that period, various examples of disease of the sinuses have been recorded by different writers; in all of them the structural lesions were not precisely the same, but they were all evidently traceable to the same pathological condition of the vessels. In an old woman who had been epileptic for two years, Prichard † found the calibre of the left lateral sinus occupied by a deposition of lymph, which had become organized. A graphic delineation of another form of this affection is to be found in the great work of Cruveilhier ‡. The disease occurred in a child, and was accompanied by rigidity of the limbs and dilated pupils. The superior longitudinal sinus was filled with a strongly adherent bloody clot, in the centre of which there existed a quantity of semi-concrete puriform matter. The torcular Herophili, and posterior half of both lateral sinuses, were in the same condition, and most of the cerebral veins contained small cylindrical masses of bloody coagulum and caseous pus.

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[*] Abercrombie, Edinb. Med. and Surg. Journal, July 1818.

[†] Ribes, Révue Médicale, t. i. Paris, 1825.

[‡] Dance, Archives Gén. de Méd. t. xix. p. 174.

[§] Lobstein alludes to a case of this kind, by Breschet, in the 2d vol. of the Journal Comp. des Sciences Médicales, but I have had no opportunity of referring to that work.

[‖] Gendrin, Révue Médicale, t. ii. 1826.

I have now adverted, in a very cursory manner, to the principal facts in our possession relating to phlebitis of the cerebral sinuses, as it occurs in an idiopathic form, or as the result of some primary lesion of the brain, or its membranes. Before proceeding to analyse the small number of cases of that disease that have been observed in connection with long continued discharge from the ear, I shall state the particulars of another interesting example of this complication, which occurred in the Northern Hospital of this town in April last.

Case III.—A man who had been long subject to purulent otorrhœa was admitted into the hospital under the care of Dr. Carson, jun., with symptoms of cerebral affection. He complained of severe headache, and lay almost constantly in a state of lethargic stupor, from which he could be roused, even till the last, to answer any question put to him. Some days before death he had rigors, followed by symptoms of acute pleuritis, for which he had a small bleeding employed; it could not be carried farther, on account of his increasing weakness. The case was casually alluded to in conversation, by one of my friends lately connected with the hospital, and he mentioned that the temporal bone had been found carious, and that he had removed it from the cranium, along with a portion of the dura mater. My attention having been previously directed to this disease, I suggested the propriety of examining the sinuses of the dura mater corresponding to the temporal bone; and on calling at the hospital next day, I was gratified to find that my conjectures had been fully verified, and that a lesion of the sinus had been discovered, analogous to that already described in a former part of this paper. The superior surface of the petrous portion of the right temporal bone was of a greenish-black colour, and was perforated at one point by the

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* Archives Gén. t. xix. p. 455, 610, 613.

† Prichard on Diseases of the Nervous System, p. 176.

‡ Cruveilhier, Anatomie Path. liv. 8, pl. iv.

caries, while at another point, a thin diaphanous lamella remained undestroyed. A carious opening also existed at the upper edge of the fossa, containing the lateral sinus; and the wall of the sinus at the point of contact was slightly eroded, and of a greenish colour. The dura mater covering the diseased bone was much thickened, and coated with a layer of lymph. The lateral sinus was filled with puriform fluid, and coated internally with a false membrane of recent formation; the calibre of the sinus was greatly contracted, and at the torcular, its cavity was completely obliterated by the quantity of false membrane and lymph deposited in that situation. The inferior petrosal sinus was similarly affected, and coagula were found in some of the larger veins. It is impossible to say how far the inflammatory products extended downwards into the jugular vein; but in sawing out the temporal bone a quantity of purulent matter escaped from the incisions in the neck, and was supposed to have emanated from a deep-seated abscess in that region. The patient's relatives would not allow the examination of the thoracic and abdominal viscera; but it is almost certain that the pleuræ had become sympathetically inflamed after the formation of secondary abscesses in the lungs, and that the same lesions would have been found as in the case first related.

I have already adverted to Hooper's case of disease of the lateral sinus, in connection with purulent otorrhœa and caries of the temporal bone. After the most careful research, I have only discovered four examples of this complication recorded by other writers, and as the symptoms of the disease are obscure I shall now endeavour to give a very brief analysis of each of these cases.

I.—Dr. Abercrombie*.—A young lady, aged 15, who had long been subject to purulent otorrhœa, was affected with rigors, headache, and pain in the ear, with quick pulse and foul tongue. In a week afterwards an abscess formed in the mastoid region, and a quantity of fœtid pus was evacuated by puncture, with some relief to the headache. Pulse varied from 148 to 84 in the course of the day. Was then seized with pain in left side of chest, for which she was bled, with partial relief: she felt better next day, but pulse was very rapid, and strength sinking, and she died quite sensible on the 14th day.

Inspection.—Right temporal bone in many places rough and dark coloured, with matter betwixt it and dura mater. Right lateral sinus much thickened, and filled with a deposition similar to that which occurs in the cavity of an aneurism. Left pleural cavity contained fully a pound of purulent fluid.

II.—Dr. Abercrombie.—A young lady, aged 16, liable to purulent discharge from the ears, complained of severe headache. Eyes heavy; an oppressed look; pulse 120. She had afterwards rigors and pain in the occiput. Pulse varied from 120 to 84, and subsequently from 120 to 140, in the course of the day. There was occasional delirium and coma, but she was sensible when roused, and answered questions distinctly, until a few minutes before death.

Inspection.—Left lateral sinus full of pus and caseous matter; its coats were thickened, and its inner surface was dark coloured, irregular, and fungous; at one part the cavity was nearly obliterated. A portion of bone was carious in the course of the left lateral sinus, and the auditory canals were extensively diseased.

III.—Dr. Bright*.—A baker, who had lost a portion of his palate from syphilis, was seized with severe pain in right ear, and some bloody matter was discharged from it with relief. The left ear afterwards became worse than the right, and for seventeen nights before entering Guy's Hospital he was in a state of frenzy from pain in the head. Was tranquil during the day, but noisy and restless during the night. His answers were frequently incoherent. He was able to help himself out of bed, and two days before his death sat by the fireside.

Inspection.—Sloughing abscess behind left ear. Ventricles of brain slightly distended with serosity. The lateral and petrosal sinuses were filled with dark ill-conditioned pus, which ran up to the sella turcica, filling both the cavernous sinuses and the circular sinus. The jugular vein was found full of unhealthy green pus, till it joined the subclavian; and its coats were thick, opaque, and green, with a deposit of fibrinous matter. A mass of lint, sodden with fœtid pus, was found in the upper and back part of pharynx. Several abscesses in both lungs, containing dark green fœtid pus. Effusion of lymph in pleuræ and pericardium; right costal pleura gangrenous.

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* Abercrombie on Diseases of the Brain. pp. 35—43.

* Bright, Medical Reports, vol. ii. p. 66.

Dr. Bright remarks that the disease of the ear probably owed its origin to the irritation caused by the corrupt mass of lint in the pharynx.

IV.—Dr. Stokes*.—A boy, of strumous habit, and long subject to otorrhœa, was attacked, after exposure to cold, with severe pain behind one of his eyes. When he came to the Meath Hospital he was screaming with agony, but had neither delirium nor convulsion. A distinct tumor formed in the upper portion of the neck, about an inch and a half behind mastoid process, and was at first supposed to arise from periostitis of the base of the skull; but on making an incision, no matter could be discovered. Ear continued to discharge fœtid pus. Patient died delirious.

Inspection.—Brain and membranes natural. In the left lateral sinus was a quantity of extremely fœtid matter, of an almost cheesy consistence, and mixed with blood, and a communication was discovered between it and the internal ear, the bones of which were carious, and its cavity filled with the same kind of pus.

This case is adduced by Dr. Stokes as a curious example of œdema of the external parts, depending on deep-seated disease. These are the only complete cases of phlebitis of the cerebral sinuses following disease of the ear with which I am acquainted. Another example of this affection was observed by Dr. Stark, of Edinburgh, and is briefly alluded to by Dr. Craigie†, in his recent work on the Practice of Medicine; the temporal bone was carious, and the lateral sinus, from the torcular downwards, through the right jugular vein, as far as the subclavian, was thickened and filled with lymph, purulent matter, and clots of blood. The brain was also diseased.

In reviewing the details of the preceding cases, it can hardly be doubted that inflammation of the sinuses of the dura mater may exist in a chronic form, without occasioning other disorders of the vital functions than might be accounted for by co-existing disease of the brain or its membranes. In the patient, mentioned by Ribes, who had been for years subject to epilepsy and temporary fits of insanity, the lateral sinus contained false membrane, but no pus, and one of the meningeal veins was greatly enlarged and varicose: a similar condition of the middle cerebral vein was also observed in the case related by Gendrin. In general, however, it is probable that the pus secreted in the sinuses is transported directly into the current of the circulation, contaminating the vital fluid, and giving rise to those lesions of distant organs so frequently found in connection with a primary phlebitis. Although it is to be regretted that in most of the cases already cited the line of demarcation between the diseased and healthy portions of the jugular vein was not carefully examined, there is no want of facts to demonstrate that in many cases of suppurative phlebitis there is no obstacle to the direct intermixture of the pus with the circulating fluid. I have seen the brachial veins filled with pus, and terminating abruptly in the axillary; the only appearance at the point of union being a leaden grey discoloration of the lining membrane of the diseased vein. If it were necessary to adduce other facts of the same nature, I need only refer to the careful dissections by my friend Mr. Douglas*, of Glasgow, recorded in his excellent dissertation on the Pathology of Secondary Abscesses. I have insisted more particularly on this point, in consequence of the views lately promulgated by M. Tessier†, of Paris, in which he maintains that the first phenomenon observed in every case of phlebitis is the obliteration of the vein by a coagulum; and that a suppurative is limited by an adhesive phlebitis in every stage of the disease. In the first case described in this paper, we have witnessed an apparent confirmation of the opinions of M. Tessier; we have seen the obliteration of the lateral sinus by lymph and false membrane at the torcular Herophili, while at the other extremity of that vessel the cavity is blocked up by an adherent bloody coagulum. Here, then, we have a circumscribed phlebitis, in which the pus contained in the inflamed vein cannot possibly communicate with the current of the circulation. How then are we to account for the formation of the secondary abscesses in the lungs, and the purulent effusion into the pleural cavities? Are we to believe in the existence of an undiscovered phlebitis in some other organ? or to admit with Andral, Tessier, and others, that these lesions are to be ascribed to a pathological alteration of the circulating fluid, independent of any primary inflammation of the venous system? The rejection of the former hypothesis does not necessarily imply the adoption of the latter. There is certainly more than mere coincidence in the relation between phlebitis and the formation of secondary abscesses; and it is not sufficient for M. Tessier to have shewn that discrepancies exist between the theories of Dance and Cruveilhier as to the period at which the pus enters the circulation; but he must prove, what is contrary to observation, that the obstructing clot is found in the vein in every case of suppurative phlebitis.

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* Lond. Med. and Surg. Journal, vol. v. p. 679.

† Practice of Physic, vol. ii. p. 360.

* On Phlebitis, Glasgow, 1835.

† L'Expérience, Journal de Méd. Nos. 35, 41, 45, 59, Paris, 1838.

When we reflect that the sinuses cease to be traversed by blood during the inflammation of their parietes, we are naturally led to inquire in what manner is the venous blood returned from the brain? This problem is ingeniously solved by Cruveilhier*. He shews that the cerebral veins, although distinct at their termination in the sinuses, anastomose freely with each other at their origins, and, being destitute of valves, they may be substituted one for another; so that, in order to intercept the venous circulation of the brain, we must have complete obliteration of all the sinuses. He succeeded in rendering the superior longitudinal sinus impervious in a dog; but the animal experienced no bad effect from the obstruction. This free communication existing between the cerebral veins may, perhaps, account for the absence of hæmorrhage and serous effusion in most of the recorded cases of inflammation of the sinuses of the dura mater; and it is a subject worthy of inquiry, whether the symptomatic œdema observed in some examples of disease of the lateral sinus, and in many cases of ramollissement and abscess of the brain, is not in some degree connected with obstruction of the ophthalmic and other veins.

In conclusion, I have very few remarks to make on the treatment of chronic purulent otorrhœa. Issues and blisters at the nape of the neck, and frictions with tartar emetic ointment over the mastoid process, have been recommended; but in the more advanced stages of the disease all means generally prove unavailing. Perforation of the mastoid process was formerly resorted to in the chronic form of this affection, but owing, perhaps, to the unfavourable issue of this operation in three cases in which it was performed by Itard, it has now fallen into discredit. The operation, however, is not so extremely dangerous as is generally supposed. M. Dezeimeris* has recently examined the principal cases on record, and states as the result of his researches that the operation has been performed on nine individuals, and in some of these it was done on both sides; so that we have altogether fourteen cases of perforation. One patient died; in two cases the operation did not succeed; in two there was only a mitigation of the symptoms, and in nine the operation was completely successful.

SOME REMARKS
ON
STRABISMUS,
INCLUDING AN ANALYSIS OF TWO HUNDRED CASES.

To the Editor of the Medical Gazette.

SIR,

IF you consider the inclosed remarks upon a subject already so hacknied, worthy of perusal, their insertion in your periodical will oblige me.

I am, sir,
Your obedient servant,
C. RADCLYFFE HALL.

Manchester, Jan. 4, 1841.

Having made notes of upwards of two hundred cases of strabismus, upon which I have operated during the last three months, I venture to hope that the following observations may not prove altogether uninteresting.

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* Anatomie Pathologique, Liv. 8.

* L'Expérience, Jour. de Méd. Paris, 1838.

Of two hundred cases, the left eye was exclusively affected in one hundred and ten persons; the right eye in seventy-one; both eyes together in nineteen. In one hundred and three instances, the strabismus was single convergent of the left eye; in sixty-five, single convergent of the right eye; in seven, single divergent of the left eye; in six, single divergent of the right eye; in nineteen, double convergent.

Age of the patients.—From two to three years, one; from three to four years, three; from four to eight years, eleven; from eight to fifteen years, forty-eight; from fifteen to twenty years, forty-four; from twenty to thirty years, fifty-eight; from thirty to forty years, twenty-six; from forty to fifty years, five; from fifty to sixty years, three; sixty-two years, one.

Duration of the strabismus.—From one to three years, in seven cases; from three to six years, in eleven; from six to ten years, in twenty; from ten to fifteen years, in forty-one; from fifteen to twenty years, in forty-nine; from twenty to thirty years, in thirty-two; from thirty to forty years, in twelve; from forty to fifty years, in six; from fifty to sixty years, in one; sixty-one years, in one. In the remaining twenty cases, the duration could not be ascertained.

Causes.—Under this head, I am obliged to enumerate the circumstances assigned and believed to be the causes of strabismus by the patients themselves, or their parents, without being able to vouch for the correctness of the testimony, except where physical conditions yet remained to substantiate the opinions given.

1. Convulsions during infancy, in nine cases; falls on the head, in seven; severe concussion of the brain, in one; difficult dentition, in three; hooping cough, in two; intestinal worms, in three; epilepsy, in two; a severe thrashing, in one; excessive fright, in one.

2. Ophthalmia which had left no opacities, in fourteen; opacity of the cornea, in five; opacity said to have existed formerly, in one; wound of the cornea, by a stocking needle, in two; by a fork, in one; by a thorn, in two; blow on the eye, in five; burn of the eye from a piece of metal flying into it, in one; a habit of looking at the sun, in two; crush from a cart-wheel going over the orbit, in two; amaurosis, in two; imperfect cataract, in three; exposure during infancy to the light and heat of a blazing fire, in three.

3. Imitation of a squinting person, in thirty-nine; watching the motion of a shuttle, in one; voluntarily trying to squint, in one; a habit of looking at a scar on the eye-brow, in one; at a scar on the nose, in two; at a scar on the cheek, in two; at a small encysted tumor at the inner canthus, in one; at a small nævus in the same situation, in one; at a mole on the nose, in one; a habit of sucking the thumb, and looking stedfastly at it, at the same time, in one; holding the head sideways whilst knitting, in three.

4. Measles, in four; small-pox, in six.

5. Severe burns of the abdomen, in two.

In four instances, I was assured that the squint was congenital. In the remaining cases of the two hundred, no causes were assigned.

Under the first set of the above, are included cases in all of which, probably, the strabismus occurred consecutively to some affection of the brain. From the anatomical relations of the vessels and nerves within the cranium, Mr. Lucas has well remarked, we may account for many of those cases of strabismus which follow determinations of blood to the brain. The nervus abducens is more especially in close contiguity to several important blood-vessels. During the long-continued paroxysms of hooping-cough, and in the convulsive struggles of epilepsy, the cerebral circulation must be obstructed, and we cannot feel surprise that, as one of the effects of congestion, strabismus should occasionally result. It may also happen in these cases, that the retina of the affected eye has itself suffered from the disordered circulation, and thus a difference of visual power in the two organs has arisen. Compression of the sixth nerve in any part of its course, or at its origin, as in apoplexy, hæmorrhage from fracture of the skull, &c., so long as it affects no part of the third nerve, will, of course, by inducing paralysis, occasion convergent strabismus. In cases of cerebral hæmorrhage, there is often a temporary squint, which disappears as soon as the origin of the nerve supplying the antagonist muscles has become affected by the effusion. A few years ago, I saw an interesting exemplification of this. Samuel Beech, a butler, had been subject to attacks of what is generally miscalled determination of blood to the head. On one of these occasions, I accompanied my father to see him. He had had several threatening symptoms of apoplexy, but could converse, though with some hesitation. After losing twenty ounces of blood, he fainted: on his recovery from this, he was found to have lost all power of distinct utterance; his mouth was slightly drawn towards the right side, his tongue when protruded was directed towards the left, and both eyes possessed the proper visual axes, although the left eye had previously been affected with convergent strabismus for fifty years. As he gradually recovered command over the facial and lingual muscles, the squint returned, so that in about six weeks, the defect, together with complete power of speech, was re-established. In this case, there was probably some slight effusion producing palsy of the third motor nerve, portio dura, and lingual nerve of the left side. The squint arising from partial paralysis of the rectus externus oculi, or else from an hypertrophied state of the rectus internus, would no longer exist when a palsied condition of the antagonistic muscles destroyed their overbalanced power. In proportion as the cause of this last paralysis was removed, the adducting muscles regained their former superiority.

When strabismus depends on irritation of some distant part, as where it is caused by constipation, worms in the intestinal canal, irritation of the fifth pair of nerves in dentition, or, as it is stated, by severe burns of the abdomen,—the whole nervous system becomes morbidly sensible, and more or less diseased action is often set up in the brain, as proved by the occasional occurrence of effusion in such cases, if neglected. We can do little more than surmise whether the over-action of the *ad*ducting muscle arises in the first instance from spasmodic contraction, or from impaired contractile power of the *ab*ductor. But, it is certain that, in the majority of cases, after some years have elapsed, the overpowered muscle is only weaker than its antagonist, not completely paralysed, though the degree of deficiency varies very considerably. The habit of squinting once formed, interstitial changes of the muscles engaged result, the over-acting one being not unfrequently hypertrophied, whilst it is rather assumed than demonstrated that the other is in an opposite condition.

Causes residing in the eye itself must act in different ways in the production of strabismus. When a mechanical impediment obstructs the passage of light through the pupil, except in a certain position of the eyeball, any variety of squint may result from the instinctive effort of the individual to accommodate his eye to the rays of light: *e. g.* dense opacities of the cornea, capsular cataract where a portion has been removed, detachment of the ciliary border of the iris with obliteration of the natural pupil from injury, a partially depressed opaque lens half blocking up the pupil, &c. When the strabismus is occasioned by ophthalmic inflammations, it may arise from the cornea of the affected eye being directed upwards and inwards so as to exclude the light as much as possible, and at the same time, as Dr. Mackenzie observes, to lessen friction from motion of the eyelids. I have seen four cases of double convergent strabismus, where the patient attributed the defect to having had sore eyes for a considerable time during childhood; the disease, from general marks of scrofula, having been, I presume, strumous ophthalmia. In many instances of strabismus, the central part of the cornea has appeared slightly nebulous; here the obliquity must certainly be ascribed to other effects of inflammation than the slight haziness it has left. When one eye is inflamed for a length of time, its retina becomes morbibly sensitive, partly from sympathy with the tissues more especially the seat of disease, and partly from the prolonged exclusion of light, so that, when once more exposed, the natural stimulus proves too powerful, and the eye is habitually inverted; just as, when the power of the retina is suddenly impaired, as by looking at the sun, the other eye being closed, by amaurosis of one eye occurring rapidly, or by one of the eyes of an infant being exposed to a bright fire, it is turned out of the proper axis, to prevent the impression made upon it from confusing that conveyed to the sensorium by the more perfect organ. I have not seen a case of divergent strabismus from any of these causes.

Blows on the eye may lead to strabismus either by the inflammation they occasion, or by injury to the retina from the mere concussion of the eyeball. Muscles habitually called into action gradually obtain an increase of power at the expense of their antagonists. The tendency to copy abnormal muscular actions, so strong in children, is manifest in chorea, epilepsy, and hysteria, and we can scarcely hesitate to admit imitation as an occasional cause of squint. In one family, where the mother squinted, each of her five children presented a similar defect; in another, where the father, who was much from home, was the subject of strabismus, not one of his seven children acquired it. In many instances, several children in the same family have had squints, which, if we credit the testimony of the parents, the younger 'learnt' from the elder child. I was unable to ascertain any other cause than the one assigned in every case enumerated as occasioned by imitation.

I have not seen an instance of divergent strabismus produced by the habit of directing the eye towards some personal mark in the immediate vicinity.

In measles and small-pox, the conjunctiva participates more or less, and strabismus may occur from one eye having suffered a higher degree of inflammation than the other; or, in variola, from a pustule having left a corneal opacity. But without any dense opacity of the cornea, there is occasionally, after small-pox, a more or less opaque condition of the capsule of the lens; or, without this, considerable impairment of vision; so that, in some cases, it is probable that inflammation implicates the deeper-seated structures, and by injuring vision of one eye more than of the other, may give rise to strabismus. In three instances, where the eyes appeared perfectly healthy in structure, the squint was attributed to a habit of constantly looking at a deep pit left on the side of the tip of the nose.

In every case but two, the power of vision of the squinting eye was more or less impaired. Occasionally the patient has asserted that he could see equally well with both eyes, but on closing one and the other by turns, and requesting him to read small print, the focal distance of the two was found to differ.

The degree to which the eye could be everted in convergent strabismus, on closure of the other, varied from very slight, to apparently complete abduction.

Operation and its results.—I have seen no reason to change the mode of operating I have previously described.[*] The time occupied is so short, the operation almost free from pain, and its effects so little to be feared, that at the desire of the patient I have not hesitated to perform it in some cases where the probability was against ultimate success. A slight opacity of the cornea is not a decided contra-indication to the operation. Jane Jones, æt. 36, had convergent strabismus of the left eye, with slight opacity on the upper part of the cornea. The operation was performed on Oct. 3d ult. Dec. 28th her eyes are perfectly straight, their movements accord, and the previously impaired vision of the left eye has become much improved.

Unless forewarned, patients are often alarmed by the double vision which usually occurs after the operation. It generally lasts from one to three weeks, but in one instance two months elapsed before this troublesome symptom finally disappeared. In another case, the patient was so much annoyed, that in order to pursue her avocations she was obliged to tie a bandage over one eye; and thus prolonged the evil. In this case the operation had been performed on both eyes at one time, the convergent strabismus being double. The confusion of vision after the division of both internal recti at the same time, is greater than when one eye only is operated on at once; it has occurred to such an extent in some instances as to cause slight vertigo. The simple expedient of covering one eye relieves for the moment, and, sooner or later, the retinæ become habituated to their new relative axes, and the inconvenience disappears. When one eye only has been subjected to operation, though objects in general at first appear double, when viewed in one particular direction they appear single. The direction is that in which the rays impinge on what *was* the visual axis of the strabismic eye, and on the true visual axis of the originally sound eye, at the same time.

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[*] Medical Gazette, for November 13th, 1840.

In the Lancet for January 2d, 1841, Mr. Clay informs us that though he succeeded beyond his hope in banishing the necessity of the hook, by the new speculum which he invented, he has since performed the operation with only scalpel and forceps, which he has no doubt "will outlive all the schemes proposed." In his own words, "Thus doing away with Dieffenbach's and a variety of other hooks, my own speculum, and even the probe, as unnecescessary. * * * How infinitely simple this plan is to any one proposed, and how much less liable to mischief than even that of the celebrated Guerin." I confess the plan I have always adopted of using one pair of scissars and a common forceps only, without hooks or specula of any kind, appears to myself and others, not infinitely less simple, whilst any surgeon who has witnessed both, will acknowledge that it is *far* safer, quicker, more bloodless and less painful, than any operation for strabismus with the scalpel. With the knife, there is more danger of letting out the humors of the eye than would be supposed from the description of the various modes of operating, and if I had myself been in the habit of using sharp-pointed instruments, whether scissars, bistoury, or scalpel, I believe, in a few instances, the eyeball would inevitably have been punctured.

The improvement of vision of the previously squinting eye is usually very decided. Thomas Kaye, æt. 14, previous to the operation for convergent strabismus of the left eye, was unable to read common print at the usual distance when the straight eye was closed. The day but one following, he could read the same book distinctly with either eye, and two months having now elapsed, he says vision is equally perfect in both eyes. When there has been no other structural affection of the eye itself except the existence of small corneal opacities, in every instance vision has rapidly improved after the restoration of the eye to its proper direction. In the only cases in which I have operated for strabismus, where large and dense opacities existed, the pupil of the affected eye has been totally obliterated from adhesion of the iris to the cornea. It may be doubted whether anything was added to the personal charms, by thus rendering more prominent an eye which bore such evident sequelæ of disease; but, in deference to the wishes of the patient, the trial was made.

In one case only has erysipelas followed the operation. The woman had been subject to erysipelas of the face. Slight puffiness, with redness, and a tingling sensation of the right cheek, appeared on the day following division of the rectus internus of the right eye. It remained stationary for about a week, disappearing without vesication, and having had no further treatment than cold applications and aperients, the patient meanwhile following her usual employment.

The progress of healing in the conjunctiva depends on the kind of wound, the constitution of the patient, and the care taken to avoid exposure of the eye to cold subsequently to the operation. When the patient has been perfectly still during the operation, and not, by a sudden jerk of the head when the bit of conjunctiva was snipped off, caused a slight tear of that membrane, possessed of a good constitution, and been sufficiently careful, in some cases the wound has healed in a week without any granulations, though the redness has rarely quite disappeared before the fifteenth or twentieth day.

In the majority of patients, the day following the operation the conjunctiva around the incision is red and swollen, but not hot or painful; there may be slight ecchymosis beneath the conjunctiva above, below, or external to the cornea, and the eye waters if kept exposed. At the end of the first week a small prominent granulating body occupies the site of the incision, the conjunctiva immediately contiguous alone retaining its increased vascularity, and there is no unnatural sensibility of the eye. After the third or fourth week a small oval button of granulations, adherent by a slight pedicle, is found to have replaced the granulating eminence. Snipping through the pedicle is not attended with the slightest pain, provided the patient does not close the eyelids upon the scissars, and in a few days more all redness has disappeared, and a scarcely perceptible fine vertical seam is the only trace of the operation. Such is the most common course, but occasionally the subconjunctival ecchymosis lasts for five or six weeks; causing however no other inconvenience than what arises from its appearance. If the button of granulations is not removed, it keeps up redness of the inner portion of conjunctiva for an indefinite length of time. The granulations show a tendency to form a second time, when they are advantageously repressed by the nitrate of silver, or they may be allowed to form a second button, which, when once more removed, very rarely re-appears. In about five instances, however, I have had to remove granulations three times, before they ceased to return. The use of sulphate of copper or lunar caustic, with the intention of preventing luxuriant granulations entirely, has not proved satisfactory. When the patient has been exposed to cold winds, or got wet immediately after the operation, the granulations have been redder, slightly bedewed with pus, and the button longer in being formed. If the constitution is of the well-marked lymphatic temperament, with flabby tumid eyelids, the granulations are usually larger, paler, altogether more sluggish, and remain longer than in other cases; and there is sometimes ecchymosis of the lids, producing the appearance of a black eye. In one woman of this class, though not the least difficulty attended the operation, the upper eyelid became distended so rapidly as to cause the patient to remark almost immediately that it felt stiff and swelled. The next day the swelling had in a great measure subsided, and in a fortnight all traces disappeared.

I have never seen, in my own cases, any more serious affections of the eye from the performance of the operation than what I have above described; never the slightest inflammation of the cornea, sclerotica, iris, or of the general cellular tissue of the orbit. The greater number of patients have been working people, who have had the operation performed during their dinner-hour, and resumed their occupation in the afternoon. No lotion has been applied, but the eye has been shaded for a couple of days, as I found it inconvenient to adopt, what I believe is the better plan, the use of gold-beaters' skin to keep the lids motionless.

In a young child the tendon is very delicate, and easily cut through when fairly over the blade of the scissars, but in older patients the tendon is sometimes so enlarged as to offer considerable resistance to the instrument, and unless the scissars are well made, it is not divided at one cut. If the tendon is of its natural size, and the eye can be fully everted when the other is closed, on division of the rectus internus, the cornea is not suddenly abducted to the outer canthus, but rarely passes more outwardly than the central axis. When the eye, on the contrary, is extremely inverted, and can scarcely be abducted beyond the central point, the tendon is generally found to be hypertrophied, and on its division the eye is almost jerked outwardly for the instant, but returns immediately to the centre. In the proportion of about one case in six, fibrous adhesions have required division after cutting through the tendon. In one case only did the eye remain inverted to the original extent, after careful division of all the adhesions I could find. As he could fully evert the eye, and as it was straight when the other was closed, I directed him to bandage the sound eye until the divided muscle had re-united, but have not seen the case since the operation.

In some instances the inversion has been merely lessened immediately after the operation, but by a voluntary effort the cornea could be completely everted, and in the course of time, varying from two days to three weeks, the eye has become perfectly straight. I have never found the internal rectus hypertrophied in these cases. On the other hand, the cornea has sometimes been everted, but, in every instance I have seen, has gradually attained the proper central axis. The longest interval which elapsed was six weeks. In the first case, the overstrained rectus externus was at first unable to antagonise to the full extent the remaining adducting forces, but regained its power by degrees: in the second, the rectus externus acting too energetically, retained the eye in a state of semi-abduction, either until, having no opposing force, its power gradually declined, or until the renewed attachment of the internal rectus enabled that muscle once more to counteract the undue influence of its opponent.

The following is the method by which I have decided whether strabismus affected one or both eyes. If a patient with convergent strabismus is directed to look straight forwards at an object about three yards distant, if one eye has the true visual axis, being perfectly straight as long as the attention is directed to the same object, and capable of being freely moved to the full extent in every direction, whilst the other eye is inverted, the strabismus is single. If, however, both corneæ are inverted under the above circumstances, although the inversion of one eye may be so much slighter than that of the other as generally to have escaped observation, the strabismus is double. In this case, when one eye is closed, the other is perfectly straight, but when both are open, and the object of vision *not so near as to require convergence of unaf-*

fected eyes, the inversion, however unequally, affects both. I have met with two instances in which the power of vision was said to be equal in the two eyes, and either eye squinted according as one or the other received the most direct impression of the object looked at. If the right eye was covered, and the left directed to some object, on opening the right eye it was inverted, and remained so as long as attention was directed to the same object, the left cornea being in the exact centre. The left eye being shut, and the object viewed with the right, on opening the left eye it was found to be inverted, whilst the right remained straight. Each eye, when the other was closed, could be freely moved in every direction, and when at rest its cornea occupied the proper central situation. Either eye converged, one or other being always, both together never, inverted. Having no rule for choice in these cases, in one I divided the internal rectus of the right, in the other that of the left eye, and with equally perfect success.

In three cases of double convergent squint, I operated on both eyes at the same sitting; in sixteen cases an interval of about three weeks intervened. Both cases have done equally well, but as the greater number desired to follow their occupation without interruption, it was generally more convenient to operate on one eye only at once.

In twenty-nine instances, the inversion, though completely removed for the time, has returned after the operation. In these cases I have performed the operation introduced by Mr. Elliot, of Carlisle, of dividing the internal rectus of the perfectly straight eye, and in every instance with complete success. The first case of this kind which particularly attracted my attention was the following:—

Mary Crawford, æt. 20; extreme convergent strabismus of the left eye, of which the power of vision is very much inferior to that of the perfectly straight right eye.

Oct. 20th.—On division of the internal rectus of the left eye, the corneæ of both were in the exact centres.

Nov. 15th.—The left cornea is now nearly as much inverted as ever, but can be more completely everted when the right eye is closed. The tendon of the internal rectus of the left eye again divided, and all adhesions cut through, cornea once more in the centre, complete power of abduction, and only as much of inversion as is usual after a successful operation.

Nov. 28th.—Right eye perfectly straight as heretofore, but left as much inverted as before the last operation. When the right eye is closed, the left has its proper central axis. The tendon of the inner rectus of the right eye was divided; it was much enlarged: the left eye instantly became straight.

Dec. 26th.—Both eyes perfectly straight, and vision of the left much improved.

In this case strabismus affected the eye of which the muscle appeared natural in size, and that only; whilst the eye of which the rectus internus was hypertrophied was perfectly straight.

Ann Bridge, ætat. 21.—Double convergent strabismus; right eye much less inverted than the left, and the strongest in respect of vision.

Nov. 1st.—Internal rectus of left eye divided. Eye can be completely abducted, and appears straight. The muscle natural in size.

Nov. 25th.—Left eye perfectly straight, but inversion of the right eye much increased. The tendon of the internal rectus of the right eye was very much enlarged. On its division, the eye was forcibly jerked outwards, and rendered more prominent. Its cornea remained rather everted for about a fortnight.

Dec. 15th.—Both eyes are perfectly straight, though the right, the one last operated upon, retains its slightly greater prominence.

This is one of three cases of double strabismus, where the eye, of which the rectus internus was altered in size, was least inverted, until after division of the corresponding muscle of the opposite eye, when its inversion became much increased. Any explanation of this rather singular fact must be in a great measure hypothetical. I may hazard the following:—To take the case of Mary Crawford. Right eye straight, with hypertrophied rectus internus; left eye inverted, with inner rectus of the natural size. Contraction of the rectus *externus* naturally excites a consentaneous action of the rectus *internus* of the other eye. Hence, when the outer rectus of the right eye overacted, so to speak, in order, by antagonising the hypertrophied internal rectus, to maintain the cornea of that eye in the proper visual axis, it excited the *ad*ducens of the left eye to overpower the non-hypertrophied rectus externus, and thus gave rise to convergent squint of the left eye only.

John Jones, ætat. 24.—Right eye has been amaurotic since childhood. Extreme convergent strabismus of right eye, of which the internal rectus was found to be greatly hypertrophied. Eyes have remained perfectly straight since the operation on the squinting eye. Thus, hypertrophy of the rectus internus, though it generally produces convergent strabismus of the same eye, yet in some cases the other eye is the only one affected with squint. In the latter case an operation on the squinting eye alone is of no service, the inversion returning as soon as re-union of the muscle to the eyeball has taken place, and the enlarged internal rectus of the straight eye must be divided.

In most of the cases of single strabismus in which the squint has returned, though perfectly remedied for the first few days after the operation, there has been no aaparent deviation from the natural condition of the internal rectus of either eye; but the visual power of the affected eye was invariably *much* less than that of the straight eye. When the inversion was originally extreme, the squint has always been somewhat less after its reappearance than before the operation. Division of the muscle of the straight eye has perfectly succeeded in each of the twenty-nine cases. In eleven the cornea was slightly everted for a few days, but it invariably resumed the proper situation. I have never practised division of both internal recti at one operation, in single convergent strabismus, as Mr Elliott has done; because, as already stated, in one instance only has division of all the internal adhesions of the squinting eye proved insufficient to materially lessen the inversion for the time. So far from considering that "the curious proposition of operating on a sound eye to remedy the evil of its fellow is too absurd to notice,"* I humbly conceive that great merit is due to Mr. Elliott for having been the first to direct attention to an interesting and eminently practical fact. It has not been proved, that simple division of one of the recti, where all the structures of both eyes are perfectly healthy, would cause permanent obliquity of the injured eye. I believe the squint from this cause would be only temporary, and that in proportion as the cut end of the muscle became firmly united to the sclerotic, would the eye regain its proper axis; but this is mere supposition.

Mary Lyons, ætat. 27, applied on November 2d, with convergent strabismus of the right eye, the cornea of the left eye being exactly in the centre. Vision of the left eye better than that of the right. By operating on the right both eyes were rendered perfectly straight.

Dec. 20th.—Right eye has remained straight, but the left is inverted, though not to the same extent as the other eye was formerly. Vision is now the best in the right eye. The internal rectus of the left eye being divided, both eyes again became straight. The muscles of both eyes appeared alike of the natural size.

This is one of several instances of single convergent strabismus, in which an operation on the strabismal eye has merely substituted one squint for another; the previously straight eye gradually becoming inverted after the operation on the squinting one, though I have never seen it equal in extent the primary inversion. Some writers are of opinion that in all these cases both internal recti were originally affected, but that the eye least inverted escaped notice from the defect of the other being more extreme. When, prior to any operation, one eye always retains the proper visual axis in looking at an object placed at a little distance in the front, whilst the other remains inverted, and immediately after the operation both eyes are perfectly straight, there appears to be no just ground for doubting that the strabismus was single, whatever might be the condition of the muscles, and that any subsequent undue convergence of the originally straight eye must be owing to some change produced by the operation.

In single convergent strabismus, the brain has been so long accustomed to take cognizance of impressions made on the central point of one retina only, that when the previously oblique organ is by the operation retained in the proper axis, and consequently receives direct instead of oblique impressions of objects, in proportion as its power of vision becomes gradually more acute, the other, previously straight eye, may become more inverted, and thereby incapacitated for seeing distinctly. This, however, can only obtain where there was no physical cause for diminished vision in the primarily strabismal eye, beyond the obliquity, and where indeed the difference in the visual power of the eyes is not extreme. The reason why hypertrophy of the internal rectus produces in one case single strabismus of the same, and in another of the opposite eye only, and why, after an operation for single strabismus, the defect sometimes returns in the same, at others attacks the primarily straight eye, depends, I conceive, entirely upon the degree of vision exercised by the individual organ. When the left eye has been inverted, and the right eye perfectly straight, and after operating on both eyes the rectus internus of the right eye has been found hypertrophied, and that to a considerable extent, the power of vision of the left eye has been much impaired, and has not improved after the first operation to the degree usually observed. When single convergent strabismus re-appears after the operation in the same eye, the power of vision is always much deficient; whereas, if the other eye becomes strabismic, and the one primarily affected remains straight, the diminished visual power is transmitted along with the inversion.

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* Mr Clay, in the Lancet for Jan. 2, p. 497.

The rationale of Mr. Elliot's operation appears to me to be this:—When the brain has been long accustomed to receive impressions of oblique rays from the centre of one retina, and direct ones from that of the other, as in single convergent strabismus, there is a tendency to maintain such a position of the eye-balls as shall preserve this relation, since any alteration in the impressions conveyed produces more or less confusion of perception until the sensorium has become habituated to the change. If, by re-union to the globe, the internal rectus regain its power of producing inversion *before* the brain has become accustomed to receive impressions made directly upon the centres of both retinæ without confusion of vision, the squint is reproduced. By dividing the inner rectus of the straight eye, it is temporarily prevented from receiving direct rays from many objects, and the other eye consequently accommodates itself to correct vision, and by the time that the eye last operated on has perfectly recovered, so as to be capable of free motion in every direction, the power of vision of the first is so much improved that the two can act consentaneously. By covering the unaffected eye from the moment of the operation, and using the other exclusively for a week or two, the same result may in some cases be obtained, provided the muscles of the so-considered sound eye be natural in size. By this plan, however, there is certainly some risk of inducing inversion of the previously straight eye, since as the vision of the other improved by exercise, that of the closed eye would slightly deteriorate from want of use, and as soon as the re-adhesion of the divided muscle enabled it to act upon the globe, the cornea of the closed eye would be inverted, just as is that of the straight eye when covered, in single convergent strabismus. Mr. Elliot's operation effectually prevents this.

In seven cases of single convergent strabismus, the cornea was directed diagonally upwards and inwards. Division of the internal rectus and of a few adhesions posterior to its insertion, in four patients, rectified the inversion immediately; in three, not until several days had elapsed.

In two instances only (out of thirteen) has division of the rectus externus failed to remedy divergent strabismus. But in six of the eleven successful cases the cornea has only by degrees attained its proper situation. I have not tried the effect of dividing the rectus externus of the straight eye, in the two cases of failure.

From the more intimate adhesion of the conjunctiva to the sclerotica near the outer canthus, I have never seen any ecchymosis, or granulations, after the operation for divergent strabismus; but the wound has usually been completely healed in a few days, and in a fortnight all traces of vascularity have disappeared.

It was a question whether the contraction of the cicatrix left by the operation for convergent strabismus might re-induce inversion. I have never seen more of a cicatrix than a slight linear seam, except where, from the sudden motion of the patient, the portion of conjunctiva snipped off for the admission of the probe-pointed lower blade of the scissars has been larger than needful, when a slightly puckered appearance has remained, not sufficient to attract observation, and of course utterly inadequate to produce any injurious effect on the eyeball.

The following are some of the objections urged by those who are rather sceptical as to the utility of the operation:—

1. The squint returns in the same eye, or,

2. Attacks the previously straight eye.

3. The previously squinting eye remains too much everted.

4. The existence of a mass of substance in the inner canthus forming an enlarged second caruncle; and producing an appearance almost as disagreeable as the original defect.

5. If both eyes are straight, the one that has been subjected to operation remains unduly prominent, giving a peculiar and unpleasant expression to the countenance.

6. Amongst non-professionals, there is often considerable fear lest vision should suffer from the operation.

I believe the objections 3, 4, and 6, to be entirely groundless. Reasoning from the cases I have seen, in single convergent strabismus of only moderate degree, and not depending on any physical defect in the eyes themselves, division of the rectus internus of the squinting eye may be confidently expected to produce a perfect cure. In the majority of such cases, at the expiration of a few weeks there have been no signs by which a non-professional person would detect that the eye had ever been inverted. In a few instances, however, the eye has continued to appear slightly fuller, though to a less extent than immediately after the operation. When the inversion is extreme, the patient should be informed that the eye may perhaps be rather everted for a week or two after the operation, or that the strabismus may return in the same, or else affect the other eye. In either of the latter cases, division of the inner rectus of the primarily straight eye will permanently remove the defect. When both eyes have been operated on, they generally appear equally full, but where the internal rectus of one eye was much larger than that of the other, the first eye is the most prominent, for in every case, in proportion to the hypertrophy of the muscle divided, has the eyeball projected.

In double convergent strabismus, an operation on the eye most inverted will sometimes gradually correct the undue convergence of the other; more frequently, both recti interni must be divided.

The following case, though more correctly one of luscitas than of strabismus, may not perhaps be devoid of interest.

Nov. 9th.—Robert Haworth, Salford, æt. 53. Forty-five years since was severely crushed by a flag falling on his head. Left eye is so much inverted that only the outer portion of the iris can be distinctly seen, two-thirds of the cornea being buried in the inner canthus. Has not the slightest power to evert the eye, either when the other is open or closed. He can discern nothing when the straight eye is closed. As the sight of the right eye is failing, he is desirous of having some attempt made to improve the position of the inverted one. At his request, notwithstanding the assurance that it was most probable that no benefit would result from an operation, I made the attempt.

Having snipped off a small portion of the conjunctiva below and external to the cornea, I passed a bent steel probe backwards beneath the eye-ball for about three-fourths of an inch, and directing its point inwards drew towards me, and cut through the intervening structures from within outwards with a sharp-pointed bistoury. Being now able to pass the probe along the inner side of the eyeball, I divided all the adhesions there in a similar way. The eye was still as much inverted as ever. The probe was then re-introduced into the incision on the inner side and passed horizontally backwards to a considerable depth, its point being directed above the eyeball towards the outer canthus; the mass of intervening substance was rendered tense and cut through. The whole of the cornea could now be seen. Two days subsequently, the cornea was nearly but not quite in the centre. With care, the wound, extending through three-fourths of the conjunctiva surrounding the globe, healed without any unfavourable symptom. At the present date, his condition is,—cornea nearly in the centre, eyeball fixed, pupil larger than that of the opposite eye, iris very sluggish; obscure vision of that eye, improved by the use of spectacles.

It may be questioned whether restoring to its proper axis an eye, of which the vision is irremediably impaired, will not, by confusing the sensorium, injure rather than benefit sight, provided the other eye possesses perfect vision. In the above instance, however, the visual power of the straight eye having previously begun to fail, the man affirms that he sees better than before the operation, and certainly his personal appearance is rather improved.

NEW SURGICAL INSTRUMENT.

To the Editor of the Medical Gazette.

SIR,

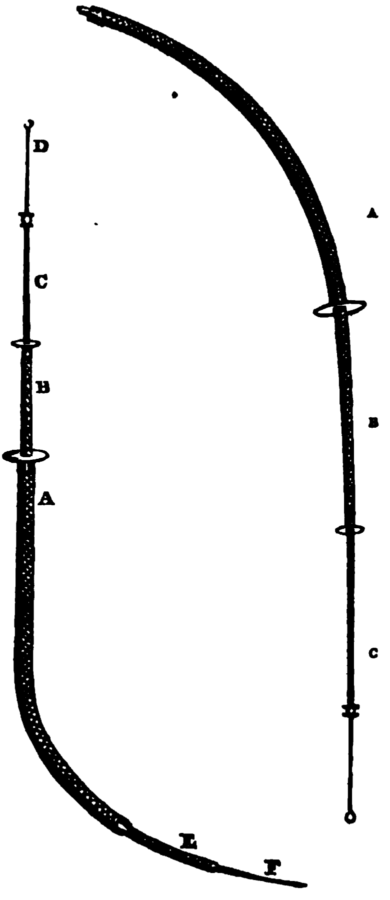
SHOULD you deem the following description of a new surgical instrument worthy of insertion in your valuable journal, I shall feel obliged.—I am, sir,

Your obedient servant,
JOHN CROXTON FOULKES.

7, Great Homer Street, Liverpool,
Dec. 24th, 1840.

The difficulties we have to contend with in the treatment of diseases of the urinary organs, particularly those which present themselves in the retention of urine from spasmodic or permanent stricture, must be familiar to every practical surgeon. The increase of spasm from the use of different sized instruments often compels the practitioner, without being able to afford his patient the desired relief, reluctantly to defer any further attempt until the irritation caused by the frequent introduction of the instruments is somewhat relieved. With the view of obviating some of these difficulties, I was induced some time ago to give an order to Messrs. Reay and Robinson, of this town, to make me an instrument on a new principle, which I beg to offer to the profession as possessing many advantages over any other I have seen. Having tested its utility in several instances I can with confidence recommend its use in many cases which will naturally suggest themselves when the principle of the instrument is understood. Without further observation, I will endeavour to explain it by referring to the annexed plates. The catheters are all made of flexible gum, consisting of an outer or larger size, No. 12, see fig. 1, A, 9½ inches long; a middle one, No. 7, 13 inches long, fig. 1, B; and a small one, No. 2, 16½ inches long; fig. 1, C B, passing through A, and A through B: the two larger cases, A and B, are tipped with silver, and the smaller or inner, C, rounded as a common catheter, with an aperture at the side for the escape of urine; the whole, when put together, forming a sufficiently round point to protect the urethra from injury: D, the stilette; E, the end of B, as when pushed forward through A; and F the end of C, as when pushed forward through B.

FIG. 1. FIG. 2.



To be introduced in the same manner as an ordinary catheter, see fig. 2, until it arrives at the stricture, and if we find that the outer case, A, will not pass, then the middle one, B, is to be tried; and if the operator does not succeed in getting that through, the smaller one, C, is to be passed on into the bladder.

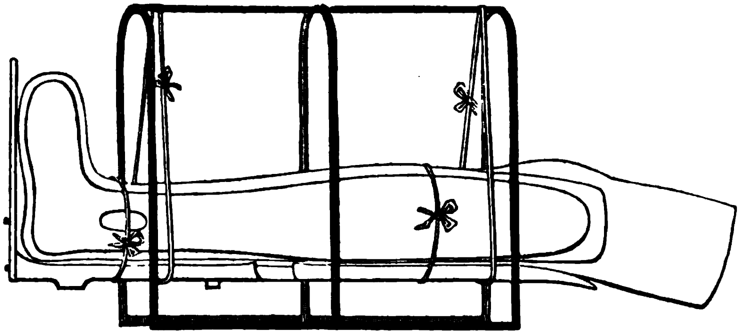
The advantages this instrument possesses in many cases over the ordinary catheter or bougie, are easily perceptible: the larger case expands the urinary canal, and dilates the orifice of the stricture, so that an instrument introduced through it will find its way more readily, with less pain to the patient and irritation to the urethra than are caused by the instruments now in use; as we are with these obliged to withdraw one for the introduction of another. The danger of forming false passages, the coiling of bougies, and the attacks of sympathetic fever, are greatly diminished, or altogether avoided, by the use of the instrument which I have invented.

SUSPENSORY APPARATUS.

To the Editor of the Medical Gazette.

Sir,

Having experienced great advantages from the use of an apparatus of which a diagram is annexed, in the treatment of fractures of the leg, I am anxious to offer a brief description of it to the profession. The principle of treatment by suspension adopted, has not the attraction of novelty for a recommendation, as several notices of it have appeared in your pages from the pen of your able correspondent Mr. Grantham. The only merit, therefore, which the subject of the present communication can justly claim, is the more convenient adaptation of the principle to ordinary practice, a merit (trifling as it may be) the promulgation of which probably may be useful in inducing others at least to give trial to a method of treatment preferable, in my estimation, to every other, which one of the largest casualty hospitals in the kingdom has afforded me an opportunity of putting into practice. It is, however, far from my intention to present to your readers an account of the success of the great number of cases which have been treated with the apparatus. It will be sufficient for my purpose to say, that the very important desideratum of uniting comfort and convenience of the patient to security of the limb against displacement, are attained. This is accomplished by the great readiness with which the fractured limb follows the various motions of the body, and on that account the principle of suspension is well adapted for the treatment of those individuals who have but a very imperfect understanding of the word "quietude." The treatment of fractures of the leg is always best performed in bed; nor, upon slight grounds, should the sanction of the surgeon be given for the patient's removal from that situation, at least during the early stages of the process of union. Yet the apparatus admits easily of such removal, and with proper precaution is capable of fulfilling the intention of the surgeon, if secured on a chair in front of the patient when seated, thus allowing the urgent calls of business to be better attended to than if he were in the recumbent posture.



The apparatus is very simple in its

character, consisting merely of a leg-rest, for which a long thigh splint, or a narrow board may in its absence, be used as an imperfect substitute, two splints, and a cradle. The first, or leg-rest, may be made either of wood or sheet-iron, the upper surface of which is hollow, and roughly shaped to the form of the back of the leg. An oval hole is made at its lower extremity for the reception of the heel, and at the upper extremity it is sloped off to adapt it to the very trifling angle formed between the thigh and leg when the latter is suspended. The rest is of sufficient length to reach from the foot to about five inches above the knee-joint on the posterior surface of the thigh, and so fitted to the ham as to afford support to the extremities both of the tibia and femur, and to remove all strain from the ligaments by which they are united. At the lower extremity is attached a foot-piece ten inches in length, and at a right angle with the rest, but capable of being inclined to either side should the position of the foot, which it is intended to support, so require. The rest is rounded on its under surface, and by being divided in the middle into two parts, which overlap each other, is capable of adaptation to the various lengths of the legs of different individuals, and of being securely fastened by a thumb-screw placed underneath, when it has been properly adjusted. The maximum length to which it can be adjusted is about twenty-six inches, the minimum length about twenty-one inches. Its breadth from side to side, at the upper extremity, is five inches, and at the lower extremity four inches.

The two splints and the cradle, being similar to those in ordinary use, need not any description. The latter, however, should be made of iron rod three-eighths of an inch in thickness. The dimensions of the cradles in use at the London Hospital are sufficiently ample for the purpose of suspension, and admit of being covered by the bed linen. They measure in length about fifteen inches; in height from the bed, fourteen inches; and in the width of the opening, fourteen inches.

In applying the apparatus to its proper use, the leg-rest and splints being sufficiently padded, the fractured limb is adjusted on the former, and secured by the latter, placed one on each side, and fastened by tapes carried around the whole in the usual way. This being satisfactorily accomplished, the rest, &c. is suspended by means of two other tapes, passed under it and over the middle bar of the cradle, now put in a convenient position over the limb. One of these tapes should be placed near to the ankle-joint, and the other a little below the knee, and both so arranged as to slide easily on the bar above and the leg-rest beneath. In suspending the apparatus care should be taken that it be not elevated too much, since two inconveniences arise therefrom, the one of which results from the too great elevation becoming irksome to the patient; the other from the suspending tapes becoming too short to admit of the apparatus swinging sufficiently easy to follow the motions of the body. The only elevation necessary for the attainment of the required objects, is that which will enable the rest to swing without coming in contact with the surface of the bed. But this contact sometimes is caused by the sinking of the cradle on a soft bed—an occurrence, however, which is easily obviated by placing a thin board under it of a size somewhat larger than is sufficient to cover the area on which the cradle rests.

The apparatus is convenient from the facility with which it admits of the removal of one or both of the side splints, and on that account it is as useful in the treatment of compound as of simple fractures, since change of dressings can be easily effected. The circumstance of the elevation admits too of better drainage to discharge, so that the frequent renewal of dressings becomes unnecessary. It also admits of examination without disturbance of the line of direction of the fractured bone, an advantage of no mean importance which it possesses over the method of treatment by starched bandages, &c. &c. I must conclude by saying, that when once properly adjusted I have not, in any case of the many treated by suspension, witnessed the displacement of the fractured bone, even in instances where previous displacement had been of continual occurrence during treatment by a fixed apparatus. I have not any hesitation, therefore, in affirming that the suspending apparatus, as above described, has afforded me more satisfaction in the treatment of fractures of the leg than any apparatus I have hitherto seen, and I have, in consequence, thought it a duty (however trivial the subject may appear to some) to offer it, through the medium of your pages, to the profession at large.—I am, sir,

Your obedient servant,
J. Luke.

39, Broad Street Buildings,
January 1841.

DISSECTION OF CASE AFTER THE OPERATION FOR STRABISMUS.

To the Editor of the Medical Gazette.

Sir,

Enclosed you will find a case which may, to many of your readers, be of some interest, especially as it is, as far as I know, the first which there has been an opportunity of examining after the operation for strabismus. You will perhaps be so kind as to publish the case in your journal, should you deem it to be sufficient interest.

I am, sir,
Your obedient servant,
Prescott G. Hewett,
Curator to the Museum of St. George's Hospital.

Jan. 12, 1841.

George Clarke, æt 30, was admitted into St. George's Hospital, under the care of Mr. Babington, on November 11, 1840, for an ulcer of the leg. He was also affected with strabismus of the left eye, which was drawn outwards, the deviation being very considerable.

On the 1st December, Mr. Babington divided the left external rectus. Rather more inflammation than usual followed, but this subsided in a few days without any particular treatment. At the time of the operation the success appeared to be complete, but after the subsidence of the subsequent inflammation, it was evident that the defect, though much diminished, was not entirely removed, the axes of the two eyes being not absolutely in the same direction. The difference, however, was very slight, and it gradually lessened, so as to be scarcely perceptible, when the patient was attacked with inflammation of the lungs, supervening on tubercles, and died on Jan. 1st, 1841.

The eye and its appendages were removed, and carefully dissected. It was found that the external rectus had been completely divided, just at the part where it was beginning to be tendinous; that the muscle itself had retracted to the distance of about three-quarters of an inch from its natural attachment, but that it still remained connected with the globe by a strong band of cellular tissue. This band was about three lines in width, and about six lines in length, and was attached to the ball of the eye about two lines behind the original insertion of the muscle, and such was its strength that it allowed of being pretty forcibly pulled upon without giving way.

There can be no doubt that this band consisted of the loose cellular membrane, which naturally connects the muscle with the globe, stretched into this elongated form by the retraction of the muscle, and afterwards condensed by inflammation.

The preparation is in the Museum of the Hospital, and I shall have great pleasure in showing it to any member of the profession who may wish to see it.

ON THE AGENCY OF SOUND IN THE HUMAN EAR.*

To the Editor of the Medical Gazette.

Sir,

I am again to offer my best acknowledgments for your indulgence in admitting my several papers into your able periodical. I hope that my present essay may also be favoured with a place in it, although delayed so much longer than I had contemplated.

I had entertained expectations that as you considered my observations on the stethoscope and the human ear merited reception, and many of the Scotch clergy had previously acknowledged that I had pointed out practical errors which occasioned confusion in their churches, those able professional gentlemen whose illustrations of sound in the stethoscope led me to this branch of acoustics, would have assisted my efforts, and pointed out where I was in error; for errors I must have committed in tracing this mazy path, more especially from the way in which it has been begun and carried on.

I have animadverted on the opinions and experiments of some very distinguished men, in no case from any selfish intentions, but solely with an earnest desire to arrive at truth, nor have I ever entertained an inclination to do anything for effect, or to wander from my own simple ideas; endeavouring to explain these comprehensively in simple and unaffected language.

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* For a former paper on this subject, by the same gentleman, see Vol. II. for 1840, p. 424.

The first impression on my mind in relation to the economy of speech in apartments was to consider the influence of surrounding solids, and so satisfied was I of the evil effects of glass, that the original paper I penned on this subject was on sound and light; yet on a reference to those who are considered the best authorities, I found that their theories rested almost entirely on the mere form of an apartment, and even where theory adverted to reflecting bodies more generally, this did not influence practice, nor call forth their attention to the necessity of adjusting sonorous solids.

Next, on viewing the auricle, or that part of the human ear which is presented to the eye, I could not imagine how it was calculated to collect any fluid to a definite point, nor could I think of any mechanical arrangement in nature or art resembling it, that is intended to collect any fluid to one point.

It occurred to me that it resembled a sugar refiner's filter, which is intended to collect as much fluid as possible on a limited extent of area, allowing the fluid to pass through the cloth of which it is composed.

If I am correct in the single circumstance of the prevailing sonorous influence of glass in apartments, the current theories which profess to treat of the economy of speech in apartments are defective, and if nothing can be found of analogous form and properties to the external part of the human ear, which collects fluid to a given point, or is capable of conducting the original intellectual sounds to the ear, these latter facts are alone sufficient to prove that the popular theories on the agency of sound in this organ are also defective.

I am, sir,
Your obedient servant.
W. SHAND.

1, Somerset Place, Glasgow,
24th Dec., 1840.

On this subject my ideas were more limited and superficial when I commenced it, and many novel circumstances occurred as I progressed, yet I am not aware that in the original principles laid down, so far as they extend, there are any material errors, although many minute modifications have necessarily been introduced. It has also been requisite frequently to repeat certain leading facts in order to impress them on the mind, as material to a knowledge of the multifarious divergencies that must arise, wherever a change, however trifling in matter or form, occasions alteration in sound.

Previous to entering upon the labyrinth or internal division of the ear, where the sense of hearing is supposed to commence in the acoustic nerve, which is immersed in a limpid fluid, through which sound must pass to reach the nerve, it may be proper to make some further remarks on external bodies. As it is in conformity to their positions and the sonorous influence of the atoms of any mass of matter, the density of these atoms, their relative distance from each other, and their uniformity, that sound is ruled;—as the ground must act a material part, let us consider its influence, and by what means the distinct character of what may be termed intellectual sounds, as speech, may be preserved by it.

The external surface of the ground is invariably rough,* and its component parts unequal, by which means sounds of moderate intensity are in a certain degree broken and divided, similarly to what is experienced in light when the rays are reflected or refracted by any rough transparent body, and the degree of sound in this case that is reflected or transmitted is less than where this is effected by any body composed of more uniform atoms and smooth surface.

If, then, thin solids vibrate much, and produce much sound, and bodies of more density or thickness produce comparatively little, the upper stratum of the ground, without powerful percussion by a solid in contact with it, must give out little sound. The human voice is also given out horizontally, and not directly towards the earth, and a yet more effectual cause for its not reflecting with much effect, so as to occasion derangement in sounds, is, that sound acts more powerfully in a vertical than in any other direction.

This is perceptible in apartments,

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* The difference of effects on rough and smooth surfaces may be exemplified in various ways, and that a rough surface may be genial to speech, is experienced in Dr. Reid's class-room in Edinburgh.

where more vibration and sound is produced in ceilings than in the walls of a room, and it is peculiarly obvious in arched or curved bodies placed over a speaker's head, as these invariably produce prolonged sounds and confusion in speech throughout an apartment; but if a horizontal arch be placed at the same distance in front of a speaker, the same degree of derangement is not occasioned.[*]

If these various circumstances be considered collectively, it will be apparent by what means intelligent sounds are preserved when operating on the ground, notwithstanding that so much derangement is occasioned by surrounding solids in apartments, where the surface exposed is of more limited extent.

Let it then be considered what is the difference of effect when the ground is in a comparatively dry state, and when saturated with moisture.

After a fall of rain sound is heard louder, more clear and distinct, and passes further, than when the ground is dry.[†] This difference is most perceptible in tropical countries, and sounds are most intense and clear when the ground has been much heated by the sun's rays, and on porous land saturated with moisture, near to the temperature of the human body, as in the locality of the Cober, where it seems to be in that state of expansion best calculated to give intensity and preserve distinct sounds. All this argues the more consistent and potent effects of solids and aqueous fluids over those of the atmosphere, and that their action and power of conduction is more rapid is generally admitted.

In order more effectually to illustrate this part of my subject, it may be proper to recur to and make a few additional remarks on the phenomenon alluded to in my essay, in the MEDICAL GAZETTE of the 9th February, 1839. In the house in Spanishtown where I noted the extraordinary concussions produced by the Port Royal gun through the Rio Cober,[‡] at the distance of eleven miles from the place where it is fired, while no remarkable effects are occasioned by field ordnance discharged close to, and on the opposite side of the town, beyond what is common in other situations. The most apparent influence is in the glass windows in inner walls, covered by venetians on the side next to the river, and in the opposite direction, and when these are closed so as to prevent any material influence from the atmospheric undulation on the glass, this does not prevent the action or noise in the windows; evincing that the most effectual vibrating action is by the ground towards the river, where it is most porous, and capable of retaining water in its interstices; and it is most powerfully sonorous when the ground is fully saturated with moisture, and at a high temperature.

There is no sensible difference in the state of the atmosphere over the town and towards the river, nor am I aware of any difference in the atmosphere in any situation that could give rise to this palpable and immense difference in action and sound in the two directions.

These circumstances appear to me to illustrate several facts previously advanced, and demonstrative of the combined influence of solids and aqueous fluids in conducting sounds with intensity and distinct efficacy beyond what is experienced in dry solids in contact with air, which is practically evinced in many cases, and in none more than in apartments where uniformity of arrangement of sonorous solids is not thought of or attempted, and the consequence is universal confusion in degree according to the extent and sonorous properties of the materials therein. In regard to the physical properties of the human ear, I cannot in fact imagine any mechanism throughout art or nature in any manner resembling it, where sounds are more certainly changed from their primitive character than must be the case in the central cavities of this organ; nor is there any instance so decidedly demonstrative as the labyrinth of the human ear itself, that the media it contains are by the hands of the Creator adjusted for the conduction and preservation of sound, while there are in no instance to be found solids of similar texture and diversity of form in juxtaposition with air, that are capable of preserving, and which must not deteriorate, intelligent sounds. In all cases the motion of solids in connection with water is more in accordance as to time than solids moving in air; and it must be held in recollection that sound is ever regulated by the action in matter.

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[*] In Dr. Peddie's Independent Church, in Old Edinburgh, there is a concatenation of large horizontal arches opposite to the pulpit, without much confusion being occasioned, but one of these arches of thin deal over the pulpit would occasion perturbation in every part of the church.

[†] This is consistent with what is experienced in the trachea and mechanism of speech, which cannot produce music or speech if not lubricated by (saliva) moisture.

[‡] In this as in other cases where much sound is produced, we must not view the matter abstractedly in the string or stratum of water, any more than we would determine the power of the tuning-fork unconnected with other sonorous solids. The porous banks of the Cober, especially when saturated with rain, vibrate powerfully, and in many places diffuse sound loudly, and to a great distance, and here, as elsewhere, we must consider what has the most predominant influence.

In fact, I might in a variety of ways expatiate on causes and effects in this locality, illustrative of many points, but from this I must desist, as likely to perplex the reader.

It is an important consideration, which, like many other facts, I overlooked in its proper place, that the atmosphere, which is the proper medium of transit between the solids which produce or reflect sound, and between these and the organ of hearing, as it passes in all directions, its sonorous pulsations operate on all the surfaces of all the solids within its reach, and that sound is produced in the ratio of the surfaces of the solids on which it may operate. But the properties and influence of sonorous solids are very different; and these, in a certain degree, operate in an inverse ratio to the atmosphere, which may be said to consist of a multiplicity of imperceptible elastic balls, which, when set in agitation, act more like particles that are thrown from the surface of a brewer's or distiller's vat in a state of fermentation. Every atmospheric atom in agitation is an elastic ball, acting upon and recoiling from the surface of solids, on the same principle as a boy's hand-ball when thrown against a wall; but not so the solid, the component parts of which act more powerfully upon each other, but, as already explained, to a more limited distance, and return to their original places. For these reasons less surface of the solids requires to be in contact, and the remaining parts of the solids must have freedom of action, both in the mass of matter and the atoms or crystals of which they may be composed. If these principles be correct, and one solid requires only to operate on a limited surface of another sonorous solid to produce vibration and sound throughout both, while the sonorous pulsations of the atmosphere impinging on a solid increases sound in the ratio of the extent of surface exposed to these, how is it to be reconciled that vibration is not produced by the fibro-cartilaginous pinna, while the tremulous atoms in the atmosphere enter by so small an orifice, covered by a solid also of sonorous materials, in the most natural direction in which sound approaches the ear?

In this mazy path I have travelled through all the elements that seem to me to be productive of sound. In this and my last essay certain elementary principles are more plainly and simply defined than previously, and to which it may be proper to advert briefly.

These show in what manner sound operates in different solids, as well as in the musical string; also, how it is produced in general in solids only: that the atmosphere is the proper medium of transmission from one solid to another solid, and from these to the organ of hearing; but, in order to conduct it in the human ear, that the Creator has employed the joint agency of solids with the denser fluids, as shown by causes and effects, not only in external bodies, but in the organs of speech; and that being the effects of mechanical action, those properties which govern it in these must also do so in the organ of hearing; which is confirmed by many facts. That on similar principles it is, in the stethoscope and in apartments, predominantly ruled by sonorous solids which are the primary, and the atmosphere, the minor agent, and yielding principle. The fact that sonorous solids produce most sound when a limited portion of their surfaces is in contact, but that the atmosphere produces sound on solids in the ratio of the extent of solid surfaces on which it operates, and by means of its component parts passing in all directions, seems to me to illustrate clearly certain points most important as connected with the different principles of solids and fluids, and necessary in order to understand by what means the influence of reflecting solids are produced, and why these are prejudicial or otherwise.

I may repeat that in sound, as in heat, precedence must be given to those elements which produce and conduct most freely and abundantly; and we are no more to consider air as the primary element in the production, than we are to believe that it alone produces flame or heat, because it is necessary to the existence of both.

Previous to concluding this paper, I

shall give another practical instance of the principles on which sound operates by the atmosphere on solids, by means of its diffusion in various directions, and in the ratio of their extent of surface, in order to demonstrate the predominant effects of sonorous solids in apartments for speech or music, and also in the organ of hearing. To illustrate my subject it is not necessary to resort to the Villa Simonetta, or any foreign source, but to bodies within reach of my ear and understanding.

Some days ago, when walking from the city of Glasgow to my residence in the neighbourhood, music was playing on my left hand in the Zoological Gardens. On the same side, and very near to me, was a brick wall with trees behind it, which impeded and prevented the pulsations of the atmosphere produced by the music from acting directly on my ears; but the music was heard very loud from my right hand, on which, at a little distance, stood a range of buildings, (Newton Place). The first impression on the mind was that the music originated behind these buildings; but on reaching the end of the wall on my left I was sensible that it came from that direction, and yet the sound was still louder from the right, being reflected upon the ear by the walls and windows in front of the buildings. Had I passed into the next range of buildings, a straight line with, but apart, from these (Somerset Place), new and at least as powerful reflections must have been experienced, because the latter are nearer to the Gardens, and more directly exposed to sound from that source.

That reflected sounds were more powerfully impressed on the ear, and more sensibly communicated to the nerve of hearing, in this case than original sounds, is obviously no delusion, and the analogical reasoning I would apply is this:—The brick-wall and trees divide and damp sound in the direct and natural course in which the mechanical action in the atmosphere would in their absence conduct the musical sounds to the ear, but by no means do they so effectually impede these as the tragus carries the sonorous pulsations from in front over the minute orifice in the external ear, nor do the trees behind the wall divide these so much as does the hair at the extremity of the tragus; nor can any of the obstructing external bodies be considered so completely non-sonorous as the cerumen which lines the very minute and peculiarly acute angular opening in the ear, the area of which is so limited when contrasted with that of the pinna or auricle.

As regards the influence of the reflecting surfaces of the buildings in this case, it is clearly demonstrated, that similar bodies must produce similar effects in apartments, and that in all these cases we must reason according to the operations of nature, and the principles which I have endeavoured to define.

ON OPACITY OF THE CORNEA,

PRODUCED BY SULPHURIC ACID.

By R. Dundas Thomson, M.D.

Physician to the Blenheim Dispensary*.

[*For the Medical Gazette.*]

The author was induced to take up the consideration of this subject in consequence of having seen a patient, along with Dr. Maddock, of Judd Street, upon whom a quantity of oil of vitriol had been thrown by an evil-disposed woman in a fit of passion. The case formed the subject of a criminal trial at the Old Bailey, and from the evidence the culprit was sentenced to transportation. The parts injured were the right cheek and cornea. The whole of the conjunctiva was soon after the injury extensively excited to a state of inflammation; but the most irritable parts were the linings of the eyelids, which gave rise to great uneasiness and pain. The acid, according to the statement of the unfortunate sufferer, was only in contact with the cornea for two minutes, when he had an opportunity of washing it off with water; yet permanent opacity was produced. The appearance of the patient two days after the reception of the injury was as follows:—The right cheek on its upper half was red, and painful to the touch, and when the cooling lotion was removed, a smarting sensation pervaded the injured parts; the edges of the eyelids were very irritable and red; and the lining membrane of these appendages was exceedingly vascular. The patient complained of some foreign body being "in the eye." The cornea in its central portion was dull, white, and opaque, and was not sensible to the rays of light, although much uneasiness was excited when the light was made to fall upon the whole eye. The lids of the left eye were also exceedingly irritable, perhaps as much from sympathy as from injury. Some traces of the action of acid could apparently be detected on their exterior. The general health was not considerably impaired, but appeared to suffer in some degree from the nervous irritability occasioned by the circumstances under which the patient was placed.

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* Abstract of a paper read at the British Association, at Glasgow, September 1840

Finding no attempt, in any work on the Eye, to account for the remarkable transparency of the cornea produced by oil of vitriol* the author made a series of experiments for the purpose of elucidating, if possible, this important subject. He found that when oil of vitriol was brought in contact with the cornea of the sheep, permanent opacity of that structure was produced in from one and a half to two minutes; and that the depth to which the action extended depended upon the quantity of acid, and the time during which it remained in contact. When a drop was allowed to remain in contact with the cornea for two minutes, and when the latter was washed, it was found that the influence was superficial, and that an opaque layer might be scraped off with the point of a sharp lancet or scalpel, leaving beneath an entire and transparent surface. A chemical examination proved that the opaque portion was the result of an union between the basis of the constituents of the cornea and the sulphuric acid. The author therefore, suggested that the composition of this substance was analogous to that of some false membrane, such as is produced in croup, where a chemical compound formed with the albumen or some of its modifications existing in the secretion from the mucous membrane, and a chemical agent, generally an acid, preternaturally thrown out with the secretion. These researches were important in a practical point of view: they showed that the removal of a superficial layer, which consisted of the combination of sulphuric acid and the albumen, or variety of that substance, constituting the cornea, would leave a transparent membrane beneath. The practicability of such a method of overcoming opacity of the cornea was a subject for further physiological experiment.

Since this paper was read, the January number of that valuable journal, the British and Foreign Medical Review, has appeared. At page 64 the following note occurs :—"As this is passing through the press we observe that in a communication made to the British Association, at Glasgow, the epidermic part of the conjunctiva corneæ, which is rendered opaque and peels off, is erroneously supposed to be a false membrane: the author, Dr. R. D. Thomson, does not seem to be aware of the difference in the chemical composition of the epidermic layer and the proper substance of the cornea; and consequently that the reagents which render opaque the former have not the same effect on the latter."

The reviewer here asserts, but produces no proof, that there is an essential difference in the chemical composition of the conjunctiva and that of the cornea. His remark, however, is not borne out by the results of the author, nor by those of any authority with which he is acquainted. It is certain from the experiments of the author that sulphuric acid renders the cornea opaque as well as the conjunctiva. The experiment is so easily made, that any one may satisfy himself of the accuracy of Dr. Thomson's statement. It also affords a convenient mode of exhibiting the layers of the cornea, as by rendering each layer successively opaque and removing it, an entire and transparent surface beneath is brought into view.

The author did not intend to assert positively that the new compound formed on the surface of the cornea was a false membrane. He merely suggested that its composition was analogous; and that by its removal, a fresh surface, apparently healthy, was left exposed.

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* By oil of vitriol is understood the sulphuric acid of commerce, consisting of one atom dry sulphuric acid and one atom water.

ANALYSES AND NOTICES OF BOOKS.

"L'Auteur se tue à alonger ce que le lecteur se tue à abréger."—D'ALEMBERT.

Lectures on the Morbid Anatomy of the Serous and Mucous Membranes. By THOMAS HODGKIN, M.D., &c. Vol. II. Part I. 1840.

No one acquainted with Dr. Hodgkin's former works could fail to derive pleasure from the announcement of the publication of another portion of his book on Morbid Anatomy, since it affords an assurance both that the health of this most ardent pathologist is happily restored, and that his unexpected removal from Guy's Hospital (whose museum owes so large a portion of its value to his labours, and on whose school he conferred so much honour,) has not diminished his devotion to an ill-remunerating science.

The present volume, though brought out under the disadvantageous circumstances of not being able to refer to the preparations from which it was chiefly composed, maintains the character of its predecessor. Its title of *Morbid Anatomy*, indeed, but ill represents the nature of its contents, which in many parts include much of diagnosis and of practical medicine. It might, therefore, have been justly called *Pathology*. Under the head of the Morbid Anatomy of the lower end of the Ileum, for example, the greater part of the doctrine of fevers is examined; and under that of Pulmonary Mucous Membrane the whole of Phthisis and Tuberculous Diseases generally is considered. Nor do the contents of the work show that the specific part of its title has set close boundaries to its contents; had it been so we should scarcely have found the whole of Pneumonia, or of Phthisis, or of Pulmonary Apoplexy, treated of. However, the materials thus by force brought in are too good for us to quarrel with digressions that, in other cases, would have been intolerable, or would have needed long apologies; they rather lead to the wish that the author had not limited himself to the diseases of two classes of membranes only, but (omitting all but morbid anatomy) had determined to treat of the whole of that subject, and had filled up a wide gap which still exists in medical literature.

In a work of this kind it is difficult to point out all the novelties, and the more so as being written in the form of lectures, into which, for completeness' sake, much that is old and well known must be admitted, the new things, however numerous, lie widely scattered, and are but briefly noticed. Amongst the best remarks are some of those on Pneumonia. In treating (in the first volume) of the inflammation of the serous membranes, Dr. Hodgkin particularly insisted on the necessity of distinguishing two modes of inflammation; the one plastic, in which the more solid part of the product consists of fibrine, and is susceptible of organization, and is therefore entitled to the title of *Vital;* the other, in which the product of the inflammation continues to retain a more or less fluid form, the minute particles of which it is mainly composed being held in suspension in a serous or viscid fluid portion. In this latter product no organization takes place, and it may therefore be styled non-plastic, inorganizable, or puriform. Now the same differences of modes of inflammation occur (the author believes) in the lungs also; the first form, the plastic (or adhesive) inflammation, is met with in all cases of *francke* pneumonia, and is especially well illustrated in the lobular pneumonia of children; and this form also produces the genuine red hepatization; the non-plastic form gives rise to the grey or light-coloured consolidation of the lung, which is not produced, as is generally taught, at a later stage of the red induration, but which (the author is persuaded) is of a light colour from the very commencement. The reasons given for this opinion seem to us nearly sufficient, viz., that many cases in which this form of change is found have been of too short duration to admit of the probability that a transition from red to grey has taken place, and that there is an essential difference in the form of portions of lung affected by these two modes of disease; in the plastic form the bulk of the lung is but little altered; in the non-plastic, its texture seems remarkably distended, so that the pleura appears smooth and tense, and the lobules of large size. So much softening of the lung accompanies the non-plastic form of inflammation, that the affected tissue often breaks up into a dirty half-fluid matter, and gives the appearance as if a cavity had existed much like that produced by the softening of tuberculous matter; and in this way, by the discharge of the fluid, and the contraction of the cavity, the patient may recover; but in general this disease terminates fatally.

The remarks which are made on tuberculous disease are of considerable value: among them the author alludes to the frequent occurrence of a peculiar condition in which a rounded portion of lung, varying in size from that of a pea to that of a walnut, or even a small orange, is infiltrated with a greyish translucent effusion, (an early stage of tuberculous matter) by which it is rendered completely solid. Almost at the circumference of the mass, there are generally a multitude of small opaque whitish points, like those seen in the centre of miliary tubercles, passing into a state of crudity, and very thickly set together. When these, and the smaller number of similar opaque points that occur in the centre of the mass, enlarge and become more numerous, and unite, a rounded mass of opaque tuberculous matter is formed; and, ultimately, when they soften, a tuberculous cavity of the same size. Sometimes, though much more rarely, the opaque points forming the margin advance so slowly, that they are completely softened before the central part has even acquired a general opacity; and it consequently becomes detached, as a solid slough. The author justly regards this form of tubercle (of which we can, from our own observation, confirm his accurate description) as peculiarly illustrative of the changes which tuberculous matter undergoes. The appearances here presented prove that the deposit of a translucent material precedes the formation of the opaque substance more generally known as tubercle — a truth often doubted; and that this opaque matter is not a new deposit after the removal of the translucent substance (as Andral supposed it must be in the few cases in which he admitted that the clear substance ever existed), but the result of a real change in the constitution and characters of the latter material—a change which need not be very great to produce all the alteration that is visible, namely, a loss of transparency and an assumption of opacity.

We should have been glad to multiply our extracts from this work, but we should not know where to cease. We prefer, therefore, to commend it all to our readers; it will well repay them to peruse it: if they will do so attentively they will join with us in feeling anxious for the appearance of what still remains to complete the work.

MEDICAL GAZETTE.

Friday, January 22, 1841.

> "Licet omnibus, licet etiam mihi, dignitatem *Artis Medicæ* tueri; potestas modo veniendi in publicum sit, dicendi periculum non recuso."
>
> CICERO.

DOMESTIC HYGIENE.

MORE than three years have now elapsed since we called the attention of our readers to the important topic of public hygiene.[*] The domestic care of health is at least of equal interest; and we willingly turn to the discussion of some practical points.

That part of hygiene which consists in the judicious administration of the sick-room, in removing all which is adverse to the well-being of the patient, and assisting the efforts of the practitioner for his recovery, deserves the fullest consideration; and we are glad to find that it has just been discussed by a physician of long experience[†].

Besides the hygiene of the sick-room, Dr. A. T. Thomson discusses a topic which does not appear on his title-page —the domestic practice of physic. The former is one which all allow to be of unmixed utility, and of absolute necessity; concerning the latter, a greater difference of opinion prevails.

That bipolarity, or combination of opposite tendencies, which some philosophers profess to see in all human schemes of action, and in the whole frame-work of society, is no where more conspicuous than in the subject of the practice of physic by the laity. It would obviously be best if so difficult an art as physic, demanding so much study and reading, as well as a tact sharpened by long experience, and the nice balancing of probabilities, could be practised by those alone who made it the business of their lives. Yet the *res angusti domi*, so often preventing the remuneration of practitioners, added to other causes, render this difficult; and medicine has been practised in all ages by persons of all ranks, from kings and prelates down to nurses and cottagers. Ought we to try, then, by argument and ridicule, to lessen the populous tribe of lay practitioners; or should we endeavour to give the irresistible torrent a more favourable direction, and teach amateurs to practise less destructively?

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[*] MEDICAL GAZETTE, June 10 and 17, 1837.

[†] The Domestic Management of the Sick-room necessary, in aid of medical treatment, for the cure of diseases. By Anthony Todd Thomson, M.D., &c., London, 1841.

It might be argued, in favour of the extinction of lay practice, that it is more likely to do harm than good; that its alleged limitation to slight cases is evidently false, as the diagnosis between trivial and serious illness often demands the skilful physician; that most of the persons who plead poverty as their excuse can pay for regular advice; and that it is the duty of the State to pay for those who cannot. As for the still more dangerous pretext of treating serious disease till the arrival of the physician, it might be answered that if this succeeds once in a hundred times, in the other ninety-nine the amateur will mistake the disease, or the treatment, or both. Lastly, it might be urged that an anxious mother prescribing for her own child—a common case—is in the worst condition for that cool deliberative judgment, without which medicine is a most dangerous lottery. To this the fautors of medical liberty reply—that medicine, in the language of Celsus, *nusquam non est;* that it is not the privilege of a few highly civilized nations, but the common inheritance of mankind; that as in every country instinct teaches the sufferer to ask relief, so philanthropy prompts some one to afford it; that the aid thus cheerfully proffered is morally, if not physically, efficacious, by removing from the patient's mind the painful thought that he is deserted by his fellow-men; and that the vulnerary herbs of the feudal ages, and the distilled waters of the last century, were often useful from the confidence which they inspired. They allege, too, that although lay diagnosis is certainly not perfect, it suffices in the majority of cases; and that colds, coughs, and sore-throats, are laically treated with the foot-bath and diluents with marvellous success. They object equally to the half-crowns wrung from demi-paupers, just able to pay—or to owe; and to the attendance extorted from Union practitioners, exasperated by scanty salaries, and the studied insults of the Poor Law people. Finally, they remind their opponents that difficult as it would be to put down any branch of lay practice, it would be utterly impossible to stop the domestic treatment—the most dangerous of all, in their estimation. Much may be said on both sides of the question. Nay, a third party might advocate a *mezzo termino* in the shape of Dr. Gooch's proposition of employing female practitioners of medicine, on which we formerly commented. Meantime, both of the two chief parties pursue their way; regular advice is daily brought within the reach of additional multitudes; and the appearance of well-written books, addressed to the laity, shows that the other theory also continues to be practically worked out.

We wish that some qualified person would give us a medical account of tea. There is no lack of commercial facts and botanic doubts about this interesting leaf; but where is the man who can teach us much concerning its hygienic or therapeutic value? Is it a good, or only a lesser evil than strong drinks?

Dr. A. T. Thomson thinks that tea, coffee, and weak cocoa, are well adapted for breakfast; but excludes them all if the breakfaster is dyspeptic: we would join in banishing the two last, but incline to retain the first. But then it must be in reasonable quantities; as an imperial pint of warm water requires some strength of stomach to encounter. The evening tea he supposes to be useful, because "the food taken at dinner, being in a few hours converted into chyme, requires a certain degree of dilution to enable the soluble matter to be carried into the blood." Does it really require this dilution? and, if so, is tea the best diluent? A curious fact about tea is, that it is precisely those classes who use the most dubious leaves who declare that they could not live without them, and say that their tea is the most refreshing meal they have. Will any astringent leaf serve the turn? or, is it the warm water which soothes their stomachs?

Dr. Thomson does not think that gout is produced by the wine drunk at good dinners, particularly the champagne, but by the quality and quantity of the food. On this point we once before touched. That French wines have no strong tendency to produce the gout may be seen in France, especially in the wine districts; but, in this country, the drinkers of Champagne and Burgundy are chiefly rich men, and gout has in all ages been the disease of the opulent.[*]

The account of the requisites in a sick room is very good, and shows the practised physician. It should be perused by those young doctors whose eye has not yet become sufficiently critical, and does not seize at a glance the salient merits and deficiencies of such a chamber. Almost or quite every thing is noticed. The size and aspect of the apartment; the necessity of a chimney; the tables required,—one small for the patient's bedside, the other large, with its drawer ready to furnish broad tape for bleeding, old soft linen, a sponge, a bone spatula for spreading ointment, and a number of other little matters. Then there should be a sofa, or else a reclining chair; a chest of drawers holding a host of towels; a washing-stand with additional basins; the lamp called a night-nurse, &c. &c. If there is a mirror so placed that the patient when in bed can see himself in it, it must be removed. French beds, without curtains, are best, and, if the room is large enough, it is a good plan to have two, for the convenience of change. We recollect that Franklin recommends this as a great luxury. Ventilation is, of course, of primary importance. Dr. James Gregory, when he failed in persuading the poor to let air into their rooms, used to poke his cane through the panes. (No bad example of the *argumentum baculinum.*) But so hydra-headed is error, that when he returned, he often found the holes pasted over with paper.

If the air of the patient's apartment is too dry, the vapour of warm water is to be diffused through it. But granting that we have all this, and more, that we have the air of the room at 60°, a minim measure, and the irresistible spoon for giving medicine to children[*], something still is wanting to give life to this inert machinery. We want a nurse.

Dr. Thomson justly says that it is difficult to procure a good nurse; but to get one with all the qualities which he enumerates, would savour of the impossible. She should be between the ages of twenty-five and fifty-five; strong, yet not coarse, heavy, and masculine; her strength is to be combined with activity, and though a moderate degree of corpulence is not always an objection, obesity is. She is to be healthy, and, in particular, not asthmatic, nor suffering from habitual cough; not gouty, rheumatic, labouring under any spasmodic affection, palpitation, or periodical headache. Nor is she to have piles, nor any skin disease, nor any hypochondriacal or hysterical tendency. In short, she is to be a decidedly healthy woman. Her temper is to be of the very best kind; and though she need not be beautiful, "a certain degree of good-looks is a recommendation." Many other qualifications is she to have; among them that of having no antipathies, *e.g.* to spiders; but we refrain from enumerating the long list.

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[*] Martial consoles a slave by telling him, that if he has the lash, his master has the gout in feet and hands:—

"Tortorem metuis? Podagrâ chiragrâque
secatur,
Et mallet potius verbera mille pati."

There is a story in the books that a lady wishing to have a faultless governess wrote a long letter to Colonel Bandoleer, her brother, detailing all the perfections of this ideal teacher; she received a reply of two lines only, stating that the Colonel had long been in search of such a person, but that when he found her, he intended to make her, not his sister's governess, but his own wife. Was she ever found? The books are silent. Is there such a nurse living as Dr. Thomson describes? We do not know; but we do not blame him for being so *exigeant*, as it is necessary to paint perfection, to teach inquirers to find excellence.

Dr. Thomson's directions concerning diet are judicious, and he has given receipts for beverages and dishes well suited to the sick and the convalescent. Some good *tisanes* might be added from the French Codex.

We cannot at all agree with him in what he says at the head of his list of domestic medicines—namely, that they "may be administered without risk at the discretion of the invalid or his friends," when we find among them, antimonial wine, Dover's powder, and laudanum. The doses are given under the heads of the several remedies, but surely the original license was injudicious. We are glad that in this list he has omitted calomel, with which lay practitioners make wild work.

PREVALENCE OF SMALL-POX.

A circular letter has been addressed by the Poor Law Commissioners to the Boards of Guardians of the Unions, in certain districts of the metropolis where small-pox is at present prevailing very extensively. They state, on the authority of Dr. Gregory, that the Small-pox Hospital is more than usually crowded, so that it may be necessary to provide accommodation in the Union houses for the reception of such cases. It appears that a large proportion of the cases of small-pox have occurred in persons not protected by the cow-pox, and the Commissioners strongly urge the propriety of taking further steps for inducing the public to avail themselves of the benefit of vaccination. They even think, moreover, "that if extra exertions of the vaccinators should require further remuneration, the Guardians would be perfectly justified in giving it."

The following is the return of cases admitted into the Small-pox Hospital during the year 1840:—

		Whereof have died.
Patients wholly unprotected.	194 ……	87
——— previously vaccinated	120 ……	8
——— supposed to have had small-pox previously ……	2 ……	0
——— not having small-pox	11 ……	0
Total	327 ……	95

ROYAL MEDICAL AND CHIRURGICAL SOCIETY.

Jan. 12, 1841.

Sir B. C. Brodie, Bart., President, in the Chair.

On Defective Closure of the Tricuspid Foramen as a frequent cause of Dropsy. By Peyton Blakiston, M.D., one of the Physicians to the General Dispensary, Birmingham.

Various appearances found in the heart of patients affected with dropsy referred to that organ have been generally considered as the real causes of the obstruction preceding the serous infiltration. Dr. Blakiston adduces instances from Boiullaud and Dr. Hope, and from his own observations, in which the aortic and mitral aperture had been very greatly narrowed, probably for a length of time, without producing dropsy till the near approach of death. The increase or diminution of the substance of the walls of the heart, and of the capacity of its cavities, he finds also to have occurred without dropsical symptoms. Agreeing with Dr. Hope in the frequent coincidence of hypertrophy and dilatation of the heart with dropsy, but considering that in such cases, when the proportion between all the cavities is preserved, no cause of obstruction can be recognised, he asks, is it not probable that some obstacle to the circulation, hitherto unobserved, is somehow connected with, if not dependent upon, the dilatation and hypertrophy? The dropsical effusion being, at least in most cases, more immediately dependent upon impediment to the venoua circulation, points attention to the right side of the heart; and the dilatation of its cavities generally dilates also the right auri-ventral foramen. The author compares the statement of Hunter, Dr. Adams, and Mr. King, with his own observations respecting the degree to which the tricuspid valves close the foramen in the normal structure, and after some remarks on the dimensions of the heart's cavities, and of the valves, infers that not only in permanent dilatation of the cavities, but also from shortening of the chordæ tendineæ, and from morbid adhesion of the valves to the walls of the heart, the closure of the tricuspid valves must be so imperfect as to allow regurgitation into the right auricle. As, however, the opinions of authors respecting the sufficiency of evidence in support of regurgitation in such cases are various, Dr. Blakiston proceeds to discuss this question, and inquires whether the pulsation of the jugular veins, nearly synchronous with the systole of the heart, can be admitted to be, according to Dr. Hope's opinion, independent of regurgitation. It is not unfrequently absent, Dr. Blakiston states, in hypertrophy of the right ventricle. He argues, however, that the *force* of pulsation is not the measure of the degree of regurgitation, but of the impulse from the right ventricle. If both ventricles be hypertrophied, the pulsation or shock will be great; if both be attenuated, the pulsation will be weak: while the obstruction to the circulation arising from the relative proportion between the power of the two ventricles is the same in each case, "both the venous current and that of the regurgitation fluid being derived from ventricular constriction." Of all the morbid appearances found in the heart in cases of cardiac dropsy, the deficient closure of the right auri-ventral aperture by the tricuspid valve, arising from different causes, is the only one which appears to be constantly present. The opinion of the author therefore is, that this defect is a frequent and direct cause of cardiac dropsy. "I would not be understood," says Dr. Blakiston, "as claiming that this deduction should be received as an established truth, but as bringing it forward, with the cases and facts on which it is based, in order that its accuracy may be tested by others." In conclusion, those numerous cases upon which Dr. Blakiston states his own opinions were formed, are perspicuously and concisely narrated, and the symptoms during life and the appearances after death, illustrating the subject of the paper, are placed in relief, so as to admit of easy comparison. Among them is detailed a case communicated to the author by Mr. Hodgson, of Birmingham, and a brief classified statement of morbid appearances in thirty-four cases of disease of the heart recorded by Bouillaud.

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* Dr. Thomson says that *he* invented this spoon, and not the silversmith who was rewarded for it.

At the conclusion of the paper, Dr. Budd asked if the author believed that the dilatation of the tricuspid orifice was essential to the occurrence of dropsy. On being answered in the negative, he said that the phenomena alluded to by Dr. Blakiston seemed to him to be only illustrations of the general fact, that in all cases of obstruction at any part of the heart, all the parts seated behind it in the course of the circulation suffered dilatation, whether their valves were diseased or sufficient to close their respective orifices or not. The same fact was to be observed in many cases of stricture of the urethra, in which dilatation took place in the bladder, ureters, and kidneys, successively, although the valvular structure between the ureters and bladder remained uninjured.

Dr. Blakiston did not deny the influence of disease of one part of the heart in producing changes in another; the object of his paper, and of the cases it contained, (but which were not read,) was to show that there were many examples in which dropsy had occurred when the only apparent disease of the heart was the dilatation spoken of, while, on the other hand, there were many more of disease and obstruction of other orifices, or their valves, without dropsy having taken place; and thus to render it probable that in many cases this dilatation of the tricuspid orifice was the essential cause of the obstruction of the circulation, by the regurgitation of blood which it permitted in the systole of the right ventricle, and hence of the general dropsy.

Dr. Copland said that the opinion of dilatation of the tricuspid orifice being a cause of dropsy, was not novel, but had been generally admitted, not only by M. Bouillaud, but by most of the modern writers on diseases of the heart. He had in his mind the cases of two medical men, in both of whom this was the only or the most remarkable change, and in both of whom the dropsy was general and excessive. As to the obstruction of the circulation producing dropsy, it was manifestly unimportant whether this was the effect of an actual and fixed mechanical cause, or of the regurgitation of blood through a constantly open orifice; in either case the ultimate result must be the same.

Dr. Mayo said that he thought the mode of testing the efficiency of the tricuspid valves described in the paper, and which consisted in the injection of water into the right ventricle, through the pulmonary artery, was not capable of affording any positive result. It was said that the water commonly passed between the valves; and this was what might have been expected. The efficiency of these valves depended on the action of the columnæ carneæ to which they are attached, and this, depending as it does on nervous influence, was lost with life. The tricuspid and mitral were not like the arterial valves, a kind of flood-gates, capable of being forced down by the force of any fluid directed against them, but were guided in all their movements by the contractions of the muscles belonging to them; and when these had ceased to act, it was impossible that the valves should exercise the same influence as before.

Dr. Marshall Hall thought that the attention was too exclusively directed to dropsy as a consequence of disease of the heart. Other effects, not less important, often resulted from it. He had lately had under his care, a case in which, in consequence of disease of the heart, with obstruction on the left side, bronchitis had come on, with this remarkable character, that it was entirely without cough, though clearly discoverable by other signs. After a time hemoptysis ensued, and the patient expectorated considerable quantities of blood. Then the liver was found enlarging, and it attained a very considerable size, and then hemorrhage (not from hemorrhoids) occurred repeatedly from the intestines. On examination after death, pulmonary apoplexy was found; the enlargement of the liver was chiefly the result of congestion of the hepatic veins; there was excessive congestion of the veins of the intestines, and from these the hemorrhage had taken place. In cases of this kind the succession of events was plainly traceable, and in the midst of such a complication of symptoms the dropsy was of comparatively small importance. Here the first effect of the obstruction of the left side of the heart was congestion of the lungs, producing bronchitis, with effusion of fluid into the air tubes, and then, as it increased, pulmonary apoplexy; then followed obstruction at the right side of the heart, and on this the lividity of the face and upper part of the body, and the congestion of the liver, producing its enlargement. Next, the obstacle to the passage of blood through the liver was communicated to the blood of the portal veins, and from this resulted the great congestion of the intestines, the hemorrhage from the intestines, and the ascites. He had cases very similar in many respects to this, which were still under his care; and all tending to show that there were many other consequences of diseased heart which required notice as much as that which had in this paper exclusively occupied attention—namely, the dropsy.

On Dislocations, especially the Hip-joint, accompanied by elongation of the capsule and ligaments. By EDWARD STANLEY, F.R.S. Surgeon to St. Bartholomew's Hospital.

The object of the paper is to direct the attention of the society to the subject of dislocations of the larger joints, and especially of the hip, occurring under other circumstances than as the direct consequence of external violence, or of the destructive processes of inflammation.

The histories of six cases of dislocation of the hip-joint are related. In the first case both hip-joints were dislocated in the same individual, as a consequence of disease in the spinal cord producing spasms, with impairment of motion and sensation in the lower limbs. In the second case, dislocation of the hip-joint occurred as a consequence of an attack of hemiplegia. In the third and fifth cases, rheumatic affections of the hip-joint were followed by its complete dislocation. In the fourth case, the dislocation of the hip-joint was consequent on pain in the thigh treated as sciatica. In the sixth case, the dislocation of the hip-joint occurred in the sixth week from a fall. In the second case, the opportunity had been obtained of dissecting the dislocated joint, when the following peculiarities in it were discovered. The capsule and the ligamentum teres were entire, but elongated to the extent of allowing the head of the femur to pass beyond the limits of the acetabulum.

Mr. Stanley observed that the phenomena presented in these several cases were wholly different from those which are attendant on either dislocations of the hip-joint from external violence, or the ordinary dislocations of the joint from disease, and that he considered the dislocations in these cases could be explained only by the elongation of the capsule and ligamentum teres. In corroboration of this view of the subject, Mr. Stanley adverted to the effects of inflammation of a mild character in fibrous tissue, such as composes the ligaments and capsules of joints; that this inflammation, whether from rheumatism, external injury, or other cause, may be followed by a simple yielding, extension, or elongation of the affected tissue; that such a change in the ligaments of the knee-joint is frequently observed, permitting a displacement of the articular surfaces to the extent that it might be inferred from the view of the outside of the joint that there had been a complete destruction of its ligaments.

Mr. Coulson said that he should think the first and second cases detailed were of a kind similar to one that he had seen, in which a man was capable of dislocating both his thighs on to the ilia, and at will replacing them. In those cases which were described as dislocations consequent on rheumatism or sciatica, he should have little doubt that the pain was the consequence of the ulceration of the tissues of the joint, as in the usual cases of scrofulous disease of the hip. He had never had an opportunity of observing elongation of the ligamentum teres, or the capsule of the hip; in the cases of dislocation he had seen, they were usually both ulcerated.

Mr. Bransby Cooper said it was a thing altogether inexplicable and new to him, that there should be any disease capable of elongating a tissue such as the fibrous tissue of the capsule of the hip, which was by nature expressly intended for the fixing of the former, and which was, in the healthy state, altogether incapable of yielding. He had never seen such a case as elongation of these structures, and but for the dissection which had been made he should have doubted the possibility of such an occurrence as a relaxation of a fibrous tissue consequent on paralysis, such that a dislocation should take place without (as far as he could see) any muscular power sufficient for the dislocation of the bone; for the limbs, in the two first cases, were said to be paralytic.

Dr. Copland related a case of what might be termed spontaneous dislocation of the hip, and which exactly corresponded with some of those related by Mr. Stanley. It occurred in an elderly woman, who had had pains in the limb, apparently rheumatic, and in whom, unexpectedly, and without any evident cause, gradual shortening and inversion of the limb occurred. Mr. Copland Hutchison subsequently examined the limb with him, and there was no doubt whatever that dislocation of the femur on the dorsum of the ilium had taken place.

Mr. Solly said the case alluded to by Mr. Coulson was well known to him. It was that of a watchmaker, in Shoreditch, who possessed the power of voluntarily dislocating and replacing his thighs. The man had told him that he was quite unconscious how he had learned to do it, but such was now the laxity of the tissues, that it was effected without any difficulty whatever. Mr. Solly would suggest that in the first two cases detailed in the paper, the sensibility of the fibrous tissues being lost in the general paralysis of sensation, dislocation might have taken place by the spasmodic action of the muscles, without the patient having felt it.

Mr. Stanley said that he also was acquainted with a case in which the hips could be dislocated at will; it was that of a lad of 18, whom you could see as you stood behind him, throwing first one and then the other high-bone out the acetabulum, and then again replacing them, and raising himself to his usual stature. The main questions discussed in the paper might be reduced to two. First, whether elongation of ligamentous tissue sufficient to permit dislocation could take place; and this he thought was certainly established, not only by the drawing and the preparation that was exhibited, but from the well-known fact of the lengthening of the arm by its dropping down in cases of paralysis of the muscles of the shoulder, and from that which was constantly observable in long-standing cases of disease of the synovial membrane of the knee-joint, in which both the crucial and lateral ligaments became so elongated as to permit dislocation of the tibia backwards and outwards beneath the condyles of the femur, although the tissue of the elongated ligaments did not appear materially altered. In the second place, the question might be whether such elongation had occurred in all the cases related, and this he thought was also established. The cases were certainly distinct from all those of ordinary dislocations from accident; and they were equally distinct from dislocations such as commonly occur from disease of the head of the femur, and other tissues of the joint; the preparation exhibited, and another which he had hoped to be able to present, from which the drawing was taken, showed that in these the elongation really existed, and there was so much similarity in all the cases, that it appeared reasonable to assume the same cause in all.

Dr. Copland said that he could not understand why Mr. Cooper should have any doubt respecting the capability of ligamentous tissues to be elongated: he believed that Sir Astley Cooper had particularly described a state in which they become singularly relaxed.

Mr. Arnott said some of the cases related in the paper had an important bearing on others in which surgeons were very likely to fall into disgrace, on the suspicion of having overlooked a dislocation, which, in reality, had not occurred till a considerable period after the accident. He had been lately consulted in a case of this kind: a man had a fall, and the surgeon who examined him, finding no change in the position of the parts about the hips, treated it as a bruise. The man remained for some time rather lame;

but it was not till a very considerable period had elapsed that the limb was found to be shortened and inverted. On examination, it was now certain that the femur was dislocated unto the dorsum of the ilium; and on the evidence of the surgeon who had first attended the case, and on whom some obloquy had been cast, though perfect reliance might be placed on his opinion, it was equally certain that the dislocation had not existed from the time of the accident. Attempts were made at reduction, and the limb was twice or more drawn down to its full length, and even to something beyond the length of the other; but it was found impossible to replace the head of the femur in the cotyloid cavity.

The President said that it had fallen to his lot to see many cases of what were called spontaneous dislocations of the hip. These he believed had been of two kinds; in the one he considered that inflammation of the synovial membrane had taken place, producing increased secretion, distending the capsule, and gradually pushing the head of the femur outwards, so that the trochanter became more and more prominent, till at last the head passing beyond the brim of the acetabulum, the muscles drew it up to the dorsum of the iluim. Some cases of this kind were related in his work on Diseases of the Joints, but whether in these elongation of the ligamentum teres and capsule had taken place, he could not say, not having had an opportunity of dissecting any. In other cases the dislocation followed disease of the hip, commencing either in the articular cartilages or in the head of the femur. These cases were commonly accompanied by suppuration in the joint, with distension of the capsule, and often ulceration of it. In some of these the head of the bone passed through an ulcerated aperture in the capsule; in others part of the capsule remaining entire it was drawn up with the bone; in others again the whole capsule seemed destroyed, so that its tissue could no longer be distinguished from that of the surrounding parts. As to relaxation of the ligamentous tissues, he thought this was far from uncommon; he had somewhere recorded such a state as occurring in hysterical women, who could often produce at will subluxations of many of the joints of their limbs, and had a peculia rlaxity of all the ligaments. He had lately seen a lady in whom this laxity existed remarkably in the lower jaw, so that it was apt to be dislocated in the common movements of the mouth; and he believed this state was much connected with the general condition of the health, for after this lady's strength had been improved by a course of steel medicines, the looseness of her jaw was remarkably decreased. The same relaxation of ligaments existed in some other nervous affections: only that morning he had seen a child who had suffered from what might be called infantine paralysis from some disease of the brain: the joints of the leg were all loose, and the astragalus could be easily drawn so far forward that no doubt it might be completely dislocated by a very slight accident. As to the cases in which dislocation followed a considerable time after receiving an injury to the hip, he had seen some of these, and had always supposed them to be the result of slow disease of the joint, by which the femur was either pushed out of its socket by an accumulation of synovial secretion, or by which the ligamentum teres and other parts were slowly destroyed by ulceration. He remembered well having a young man under his care who had been sent up trom the country, where he had suffered some time from the effects of a blow on the hip. He was not much relieved by the treatment, and one morning, to his great mortification, the hip was found to be dislocated.

Mr. Bransby Cooper said the states of elongation of the ligaments alluded to did not bear on the cases in question. Those occurring in the knee-joint were hardly to be regarded as elongations; for in dislocations of the tibia backwards, neither the crucial nor the lateral ligaments would be likely to be put on the stretch. Besides, in these cases of disease of long standing, all the tissues were so altered that ligaments at length scarcely deserved the name, and could not be expected any longer to perform the functions of ligaments. He knew also very well that there were states in which dislocations could be produced with great facility after they had once occurred; four or five such cases had been lately in Guy's Hospital. But there was no proof that in these there was elongation of the capsule or ligamentum teres, tissues which he would again urge were especially adapted and formed to resist physical extension. He must repeat, that it was to him a new and perfectly inexplicable fact, that in a state of paralysis such a disease of a fibrous tissue should take place as should produce its elongation and enlargement; and that in a person lying paralytic, and therefore necessarily in the recumbent posture, dislocation should take place when there seemed no muscular power by which it could be produced.

At the conclusion of this discussion, of which we have been able to insert only a very brief and imperfect sketch, and which was carried on with unusual vivacity for more than half an hour beyond the usual time, the President announced that Dr. Franz had brought to the Society an instrument for the cure of short-sightedness, which he would be happy to explain to the members of the Society. This apparatus, of which the main intention is to provide a means for gradually increasing the distance at which a book is read, by gradually raising a support for the head to a greater distance from a small reading-desk, excited considerable attention. It was, we believe, invented by Dr. Berthold, of Gottingen, and was named by him the Myopodiorthoticon. (A minute account of it is inserted at page 866 of the last volume of the MEDICAL GAZETTE.)

Before the reading of the paper was commenced, Mr. Bransby Cooper begged to be permitted to assure the President of the gratification the Society felt in seeing him again amongst them after his recent serious accident; an assurance which was warmly confirmed, and for which Sir B. Brodie briefly returned thanks.

REPORTS OF CASES,

By H. M. Hughes, M.D.
Assistant Physician to Guy's Hospital, and Physician to the Surrey Dispensary.

(For the Medical Gazette.)

Cynanche tonsillaris.—Women, it has appeared to me, are more subject to this affection than men. Among the patients who have presented themselves at the Dispensary, as well as among those visited at their own residences, this increased liability of females to inflammation of the tonsils has been evident. The number of those in which the complaint was so severe as to render them incapable of leaving home was only seven, and of these six were females. The treatment in all was simple; consisting merely of the administration of emetics and saline aperients, the inhalation of the vapour of warm water, and the application of leeches and blisters, while the disease was acute, and the use of astringent, acid, and capsicum gargles, and the exhibition of bitter infusions and occasional purgatives, when it has assumed the chronic form. Two of the cases terminated by suppuration, and the remainder by resolution, but none presented any features worthy of especial notice.

Erysipelas of the face.—Of the three cases which came under my notice as patients of the dispensary during the year, two were of a trifling nature, and were cured in a few days by a brisk mercurial purgative, saline medicines, and simple emollient applications. The other occurred in a woman, aged 68, who had formerly been in a superior station in life, and had always been of very temperate habits. When she was first seen the disease, originally induced by a draught of cold air, had already existed three days, and covered the vertex, and one side of the face. The rash was of a dusky crimson hue; the pulse was feeble, but not much excited; the tongue coated and moist; and the bowels rather confined. Regarding her age, the feebleness of her pulse, and the unusual absence of constitutional excitement, together with the dark colour of the rash, I thought it prudent, after a purgative of rhubarb and calomel, at once to commence with tonics and stimulants. I therefore prescribed decoct. cinchon. ℥iss.; ammon. sesquicarb. gr. iv. to be taken every eight hours, and ordered the affected parts of the face to be freely punctured with the point of a lancet, and to be afterwards fomented. The following day the erysipelas had extended, but the turgescence and tension of the parts punctured was much reduced, her bowels had been freely acted on by the powders, and as she was in no respect worse from the exhibition of the tonic, it was ordered to be continued every six hours, and the punctures of the face to be repeated. The same medicine and the daily punctures were prescribed to the fourth and fifth day, when the rash, after extending over the whole face, and to both ears, gradually subsided, and the patient without a bad symptom of any kind was speedily restored to her former health and strength. I have noticed this case simply for the purpose of mentioning the admirable effects I have seen result in similar instances from frequently repeated acupuncturation of the parts about the head and face affected with erysipelas, originally practised, I believe, by Dr. Sutton, and highly recommended by Dr. Bright. The minute vessels of the part are thereby unloaded, the turgescence of the surface reduced, and the pain relieved, without decreasing in any appreciable degree the power of the patient. I have ordered it and seen it ordered in many cases. In several it has appeared to arrest the progress of the disease, in most it has afforded very decided relief, and in none am I aware, though some of the patients have ultimately died of the complaint, that its effects have been injurious, or otherwise than advantageous. The patients generally represent the pain caused by the operation to be severe, but it is of short duration, and the ease that is afforded by it more than compensates for the brief previous suffering. No marks, or such only as are perceptible upon close and attentive examination, are left by the punctures.

Colica pictonum.—In consequence of an extensive white-lead manufactory existing within the district, a considerable number of patients, suffering more or less severely from the poisonous effects of that mineral, have applied for advice at the dispensary. Seven only, however, during the year were confined at home with colic. Of these six were employed in the white-lead works, and the seventh was engaged in melting the "dross" and refuse lead of plumbers. Most of them had previously suffered more than once from the same complaint, and one of them had been affected for several weeks with partial paralysis of the hands.

Upon the proximate cause of lead colic, scarcely any thing of a definite character appears to have been ascertained, as in the comparatively few fatal cases that have been examined, no single morbid condition, or assemblage of morbid conditions, has been so frequently noticed as to be considered characteristic of the disease or in any degree satisfactorily to account for all its accompanying phenomena. In the most recent work * upon the subject, it is regarded as a neuralgia of the sympathetic nerve, and the opinion is in some degree supported by the "arthralgic" affections which frequently accompany it, but far from being its invariable, or even general attendants. But as it has been observed by the reviewer of that work, "neither the character of the pain, the symptoms existing simultaneously with it, the subsequent degeneration into paralysis, nor the modes of treatment most commonly found effective in its cure, afford any countenance to the idea that the disease is a neuralgia." It may be, I think, with truth asserted, on the contrary, that the established sedative action of lead, when administered as a medicine, its decided influence in causing paralysis of the voluntary muscles of the parts to which it has been in frequent or long continued contact, as well as an attentive consideration of the symptoms accompanying the complaint, and of the medicines which are most effectually employed for its removal, all tend to confirm the opinion that colica pictonum essentially depends upon paralysis of a portion of the intestinal tube and that the spasm (if it really exists) results from the contractile efforts of the intestine above the part paralysed to overcome the obstruction there existing. Pains approaching in character those of colica pictonum, accompany obstructed intestine from other causes, and like them are generally removed by a free action of the bowels. Nor is it difficult to conceive that paralysis may affect one portion of the canal while spasmodic contraction exists in another, if it be believed probable that the lead may be taken into the stomach together with the food, and from particles floating in the air—that like magnesia and sulphur it may accumulate in the colour, and that it may there act simply as a sedative upon the nerves of the part to which it is applied. The prophylactic influence of cleanliness, of care to avoid eating and drinking in an atmosphere impregnated with the mineral, and of occasional doses of castor oil, or other aperients, tends to confirm the probability, or at least the possibility, of this origin of the complaint. In a paper published in the 1st vol. of the MEDICAL GAZETTE of 1835, I mentioned several facts collected from authors who have written upon the diseases produced by lead, and many which had occurred under my own observation, which then appeared to myself almost to prove that this mineral sometimes induces paralysis of the limbs by contact with the extremities of the nerves supplying the muscles paralysed. Since that time I have noticed many circumstances which have tended to confirm the truth of the opinions there advanced. If those opinions are tenable in reference to the external surface of the body, it would, I conceive, be difficult to show that they are not equally applicable to its internal surface also.

The treatment adopted in the seven cases of colica pictonum referred to above, and indeed in almost all of those who have applied to me for advice, was simple and uniform. To quiet the stomach, to allay the pain, and to induce a free action of the bowels, were the indications which directed it. In almost every instance, indeed with only one exception, which will be hereafter mentioned, it was sufficient in relieving the symptoms in a very few hours, and in completely curing the complaint in a very few days. Ten or twelve grains of calomel, with one or one and half of opium, were directed to be taken directly, and if rejected to be repeated in three or four hours, and the abdomen was ordered to be assiduously fomented with hot decoction of poppies. Four hours after the pill had been retained, a common aperient draught of ℥ij. of *warmed* infection of senna, and ʒiss. of epsom salts were ordered to be taken every four or six hours till the bowels were freely moved. If the desired effect was not produced in twenty four hours, the action of the medicine was assisted by a turpentine enema. The severe pain has almost always been removed when the bowels have been freely moved, but a dull heavy pain at the scrobiculus cordis has not unfrequently remained for two or three days, and a tendency to constipation has existed for a longer period. Under such circumstances five grains of blue pill, with half a grain of opium at bedtime, and the use of less powerful aperients have generally sufficed in a short time to restore the patient to his accustomed health. Though I believe that in severe and obstinate cases venesection expedites the cure, and very materially assists the operation of other remedies; I have yet never thought its employment necessary in uncomplicated examples of lead colic. A very large majority of M. Tanquerel's cases were attended with constipation, but diarrhœa is stated to have existed in a few throughout the entire course of the disease. I have never seen an example of lead colic with diarrhœa as an accompaniment.

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* Traité des Maladies de Plomb, &c. par L. Tanquerel, in the British and Foreign Medical Review, Oct. 1840.

In only one of the patients was there any paralytic affection of the hands, and in one only was there any cerebral disturbance of importance. The case of the latter was briefly as follows:—

Cornelius Lyons, aged 34, a rather slight man, of light complexion, came under my care as a patient of the dispensary, March 7th, 1840. He was employed in a white-lead factory, and on one previous occasion had suffered from colic. His pain was exceedingly severe, occurring in paroxysms of several minutes duration, and a heavy aching of the abdomen existed during the intervals. He had occasional vomiting; the abdomen was flat and supple: the tongue slightly coated and moist; the gums edged with a dark blue line, and the bowels constipated; he complained of no pain in his head or limbs.

> ℞ Hydrarg. Chlorid. gr. x.; Opii, gr. j.; st. sumend. Haustus Cathart. ℥ij. (tepid) post hor. iv.; deinde 6ta quaque hor. ad sedes. Fotus Papaver. callid. abdomini applicand.

For three days I heard nothing of him, and supposed therefore that he had been relieved, but on the 10th I was requested to see him again. I then found that his pain was still severe, that vomiting was still frequent, and that his bowels had not been opened. I also heard that he had that morning had an epileptic fit, and I myself saw one of a well marked character which occurred during the visit, and lasted for about ten minutes. I was now for the first time informed that he had previously been in a hospital for a month in consequence of a severe pain of the head, for which he had been cupped and blistered with relief, but that he had never before that morning suffered from fits. After his recovery from the epileptic paroxysm he did not complain of pain of the head, and his pulse was natural as to frequency, feeble, and small. He was ordered

> Sp. Terebinth. Ol. Ricini, aa. ℥j.; Decoct. Avenæ. ℥xiv.; M.ft. enema statim injiciend. Rep. Mist. et Fotus. ℞. Hydrarg. Chlorid. gr. j.; Opii gr. ¼; M. ft. pil. singul. cum dosib. mistur. sumend; Empl. Cantharidis nuchæ applicend.

11th.—Bowels only slightly moved; but he experienced very great relief after the exhibition of the enema, and the sickness and pain were considerably alleviated; pulse still feeble; did not complain of pain or heaviness of the head.

> ℞. Haust. Cathart. ℥iv.; Decoct. Avenæ. ℥xvj.; M. ft. enema statim. injiciend; ℞. Ol. Ricini, ℥ij.: Tr. Opii. ♏x. M. capt. dimid. st. et rept. in hor,; vj. nisi alvus soluta fuerit.

12th.—The bowels had been freely opened; the sickness had ceased, and the pain of the abdomen had almost entirely disappeared. He complained of headache, and the pulse was only 60 in the minute, full and strong.

> V. S. ad ℥viij. Rep. Enema vesperè; ℞. Hydrarg. Chlorid. gr. j.; Ext. Hyosciam. gr. iij.; Ext. Coloc. C. gr. vj.; fiant pil. ij. ter die sumend.

After this time I called at his house, but found him away from home, and when he came to the dispensary on the 17th, I heard that he had returned to his occupation. He had no ptyalism, his bowels were freely moved twice or thrice daily, and he had no pain.

> Rep. Pil. om. nocte. ℞. Magnes. Sulph. ℥j.; Tr. Hyosciam. ♏xv. Inf. Gentian. C. ℥iss. M.ft. haust. ter die sumend.

28th.—Discharged free from complaint.

This patient has not since suffered from colica pictonum, but is at present under my care as an out-patient at Guy's Hospital for paralysis of the wrists and hands.

CASE OF ACUTE HYDROCEPHALUS CURED.

BY DR. BIERBAUM, OF DORSTEN.

A BOY, whose head was disproportionately large, had from his birth frequently suffered from indigestion, and the greatest variety of children's diseases, which very much checked the development of his body. In April 1837, when he had completed his second year, after being chilled in the feet, and taking indigestible food, he was attacked with a gastro-rheumatic fever, and hardly had he got over this, when in consequence of taking cold again, one of the most destructive of children's diseases came on. The patient could not bear his playthings; became very peevish; complained of violent headache; could not hold up his head, but let it fall from one side to the other, and when lying down, plunged it deep into the pillow. The temperature of the head was burning hot, while the extremities felt cold; the carotids pulsated strongly; the face was of a corpse-like paleness; the eyes red and intolerant of light; the nose and the external auditory meatus quite dry; the tongue clean and red; thirst great; appetite gone; bowels costive, urine scanty; the pulse frequent and hard. To this were added vomiting, terror, coma vigil, the greatest indifference, seizing the head with the hands, grinding of the teeth, respiration hardly audible or visible, and interrupted by sighs, and repeated exclamations that he was burning or falling. It was equally obvious that the disease was inflammation of the brain, and that the child was in great danger. Several leeches were applied to the mastoid process, a blister was put on the back of the neck, mercurial ointment was rubbed on the submaxillary glands, and two grains and a half of calomel * were administered daily. On the seventh day of the treatment, the submaxillary glands were considerably swollen, the angle of the mouth was sore, and its cavity reddened, but there was no remarkable mercurial odour, and no commencement of salivation. On this day, 15 grains of calomel having now been taken, and two drachms of mercurial ointment rubbed on, a happy change took place, and gave great probability of a favourable termination. In the evening, the left cavity of the nose again secreted mucus, and afterwards the right cavity; the eyes (of which the left had been affected with œdema of the upper lid) again poured out tears when the child cried; and each external auditory meatus, but the left one more than the right, likewise began to secrete mucus. The return of these natural secretions, which deserve the greatest consideration, afforded the surest sign of the decrease of the morbid processes above mentioned. In order to aid these critical endeavours of nature, and give the last blow to the disease, Dr. Bierbaum used six more grains of calomel, and another drachm of mercurial ointment; so that in all, twenty-one grains of calomel, and three drachms of mercurial ointment had been employed. It was now time to discontinue the treatment, as was shown by the mercurial fever which came on, and which disappeared again in a few days. In this manner the child fortunately escaped its threatened fate; it recovered rapidly, and still enjoys the most perfect health.—*Med. Zeit. v. V. f. H. in Pr.;* and *Schmidt's Jahrbücher*, Sept. 1840.

APOPLEXY, WITH HEMIPLEGIA,

IN CONSEQUENCE OF FRIGHT.

By Dr. Ritter.

The only peculiarity of this case is its cause. A robust and rather plethoric woman, thirty-eight years old, was in perfect health, and speaking to a neighbour, when her servant-girl frightened her by brandishing a bright spiral wire over her head, so as to make it look as if a snake were falling on her. In her fright the woman suddenly fell down in in an apoplectic fit, and remained for some time nearly unconscious. When examined she complained of a noise and beating in the left side of the head, deafness of the left ear, and of blindness and loss of taste on the same side. She could not move any part of the left side of the body, and in every respect resembled a patient suffering from hemiplegia in consequence of sanguineous apoplexy. By active antiphlogistic treatment, and various other measures, she was gradually restored from this state in about three months. (*Medicinische Zeitung, Sept.* 9, 1840; and *Brit. and For. Med. Rev.*

A TABLE OF MORTALITY FOR THE METROPOLIS,

Shewing the Number of Deaths from all Causes registered in the Week, ending Saturday, the 9th January, 1841.

Small Pox	86
Measles	27
Scarlatina	26
Hooping Cough	27
Croup	3
Thrush	2
Diarrhœa	8
Dysentery	3
Cholera	0
Influenza	0
Typhus	36
Erysipelas	9
Syphilis	0
Hydrophobia	0
Diseases of the Brain, Nerves, and Senses	168
Diseases of the Lungs, and other Organs of Respiration	393
Diseases of the Heart and Blood-vessels	36
Diseases of the Stomach, Liver, and other Organs of Digestion	72
Diseases of the Kidneys, &c.	4
Childbed	8
Ovarian Dropsy	0
Diseases of Uterus, &c.	4
Rheumatism	4
Diseases of Joints, &c.	3
Ulcer	0
Fistula	1
Diseases of Skin, &c.	0
Diseases of Uncertain Seat	127
Old Age or Natural Decay	110
Deaths by Violence, Privation, or Intemperance	29
Causes not specified	5
Deaths from all Causes	1191

METEOROLOGICAL JOURNAL.

Kept at Edmonton, *Latitude* 51° 37 32" *N. Longitude* 0° 3' 51" *W. of Greenwich.*

Jan. 1841.	Thermometer			Barometer.		
Wednesday 13	from 20	to	38	29·37	to	29·28
Thursday . 14	33		37	29·28		29·33
Friday . . 15	30		37	29·52		29·64
Saturday . 16	29		48	29·57		29·37
Sunday . . 17	42		51	29·50		29·65
Monday . . 18	42		51	29·68		29·70
Tuesday . 19	30		38	29·71		29·65

Wind East on the 13th and 14th; North on the 15th; S.E. and S.W. on the 16th and two following days; North on the 19th.

The 13th, overcast, with rain in the morning, and snowing nearly all the afternoon and evening; the 14th, cloudy, with rain and snow; the 15th, generally clear, snow fell in the early part of the morning; the 16th, overcast, raining nearly all the day, wind boisterous in the evening; the 17th generally clear; the 18th, overcast; the 19th, morning cloudy, with snow and rain, otherwise clear.

Rain fallen, with melted snow, one inch and ·905 of an inch.

Charles Henry Adams.

Wilson & Ogilvy, 57, Skinner Street, London.

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* In the original it is half a grain, by an error of the press or the pen, as appears by the subsequent statement of what had been taken by the seventh day.—Translator's Note.

THE
LONDON MEDICAL GAZETTE,
BEING A
WEEKLY JOURNAL
OF
Medicine and the Collateral Sciences.

FRIDAY, JANUARY 29, 1841.

LECTURES
ON THE
PRINCIPLES AND PRACTICE OF PHYSIC,

Delivered at King's College, London,

BY DR. WATSON.

LECTURE XIX.

Strumous Ophthalmia continued. Recapitulation. Treatment of Strumous Ophthalmia. General remarks on Conjunctival Inflammations. Iritis: its symptoms and treatment. Causes of Iritis.

WHEN we separated yesterday, I was about to describe the treatment which has been found by experience to be the best for relieving strumous or phlyctenular ophthalmia.. Before I take up the subject where it was then dropped, let me briefly remind you of the character and principal symptoms of the disorder. It is a form of inflammation of the conjunctiva, to which *scrofulous* children, from the time they are weaned, to about the age of eight, are extremely liable. It *may* occur considerably later. Sometimes it is the first and only token of the existence of the scrofulous diathesis; generally it is observed in children who bear other marks of the strumous *habit*, and are afflicted with other forms of strumous *disease*.

Its symptoms are—first, slight vascularity; the redness being partial, and resulting from one or more fasciculi of superficial vessels, that advance from the circumference of the visible part of the eye towards the cornea, where they usually stop: sometimes however they pass a little beyond its edge: at the extremities of these fasciculi, upon or near the line of separation between the cornea and the sclerotica, small prominences appear, which are sometimes absorbed, and sometimes break and form ulcers. Less frequently the phlyctenæ are situated towards the central part of the cornea. Secondly, with this partial vascularity and these pimples, and sometimes even without them, there is *extreme* intolerance of light. The pain produced by exposing the eye to the influence of light imparts a characteristic expression to the countenance of the suffering child. Tears flow over the cheek, and inflame it often, and give rise to the eruptive appearance termed *crusta lactea*; or, from its sometimes covering the cheek like a mask, *porrigo larvalis*.

I may add to this summary of what was stated in the last lecture, that sometimes the vessels which pass along the conjunctiva and over the cornea, instead of leading to pustules, extend laterally; so that several bundles of vessels unite by their mutual ramifications; and that part of the conjunctiva which covers the cornea becomes thick, as if it were darned, and more or less opaque. Indeed, the greater portion or the whole of the corneal covering may thus be rendered patchy and vascular. The appearance presented by the eye under these circumstances is called *pannus*.

Treatment of strumous ophthalmia.—You will readily believe, from what has been said of this complaint, that it is an obstinate and troublesome one. Even when removed, it is very apt to recur again. The scrofulous *habit* on which it depends we cannot get rid of; and whenever the exciting causes of scrofulous *diseases* come into action, this form of scrofula is very prone to declare itself, at the period of life which I have already mentioned.

More good is to be done by general treatment, applied to the system at large, in this form of ophthalmia, than in those we were occupied with before; and this is one strong point of difference between them.

In the first place we must endeavour to correct that unnatural condition of the whole system, and especially of the digestive organs, which is commonly so striking a concomitant of the local disease. It will be proper to clear out the bowels in the outset, and occasionally, by a mercurial purge; and to regulate them at other times by laxatives, such as rhubarb, or the confectio sennæ, or castor oil. The recovery will be greatly promoted also by those measures which are found to benefit the general health in such constitutions; warm clothing, frequent ablution of the body, nourishing though plain food, the respiration of a pure atmosphere, *change* of air, and regular exercise.

In addition to these measures, tonic medicines should be administered; the preparations of iron, for example, or the dilute mineral acids: but the best remedy of this kind is, undoubtedly, the sulphate of quina. This may be given to a child in grain doses, three times a day, dissolved in water, with a drop of the dilute sulphuric acid, and some syrup of orange peel. Dr. Mackenzie, in particular, has put this medicine fairly to the test, having employed it in a very large number of cases with the happiest results. In most of his patients he declares that it acted *like a charm*, "abating, commonly in a few days, the excessive intolerance of light and profuse epiphora; promoting the absorption of phlyctenulæ, and hastening the cicatrization of ulcers of the cornea." And Mr. Lawrence adds his testimony to the same effect; and his experience in this disease, like Dr. Mackenzie's, has been large enough to make it highly valuable.

A few words will suffice to explain the kind of local treatment that has been found useful. You may feel tempted to apply leeches round the eye. This is seldom requisite, except when there is more redness and pain than common, and the tongue becomes white, and the skin hot. Certainly you must not take the intolerance of light as a fit indication for the use of leeches. Abstraction of blood rather aggravates that symptom, apparently by increasing the irritability of the retina. Warm fomentations are generally very comfortable to the patient's feelings.

When the general disorder of the system has been somewhat rectified, local stimulants and astringents are of great service. The vinum opii, and the solution of lunar caustic, are the best. These are often tedious cases, and therefore it is necessary that you should be aware of one great objection to the long-continued employment of the nitrate of silver wash, which objection has been pointed out by Dr. Mackenzie. It is apt (but only when frequently repeated for a long time together), to stain the conjunctiva of an indelible olive colour. For this reason the vinum opii is to be preferred in slow cases, and in cases where frequent relapses happen. The good effects of either of those preparations are very striking; they diminish the irritability of the eye, and promote the healing of the ulcers. The red precipitate ointment, and the citrine ointment of the Pharmacopœia diluted, are also found beneficial.

Counter-irritation is another local measure, which is of undoubted utility in this complaint. A great change for the better in the state of the organ often occurs, almost suddenly, upon the rising of a blister placed behind the ear, or at the back of the neck. And issues in the arms are not only serviceable in promoting the cure, but have a marked effect in many children, in preventing relapses. Mr. Welbank, in his notes to Frick's *Treatise on Diseases of the Eye*, says that he has seen chronic strumous ophthalmia, of seven years' duration, quickly and effectually relieved by an issue in the arm. "Having once (says he) in the case of a boy in Christ's Hospital, directed the healing of an issue which had been made above twelve months, I found the immediate consequence to be a relapse of strumous inflammation and ulceration of the cornea, resisting every measure but the renewal of the issue."

He suggests also (what parents are sometimes more willing to assent to) the advantage of making counter-irritation by piercing the lobe of the ear, and inserting a ring or silk; and "a very convenient form of vesication will be found in the application of a strong thread, smeared with the *emplastrum cantharidis*, and firmly tied behind the ear at the angle of its reflection."

When ulceration is going on in the cornea, and threatening to penetrate it, the progress of the ulcer may be checked by touching the surface once in two or three days with a pencil of lunar caustic which has been scraped to a fine point.

When the more urgent symptoms have abated, and the discharge of hot and irritating tears has ceased, the crusta lactea may very easily be got rid of. The crusts are to be removed by a light poultice, or by warm water; and then the part must be bathed from time to time with a lotion made by mixing the oxide of zinc with water; a drachm to four ounces is the proportion I am in the habit of prescribing. If rose water be used instead of common pump water, the prescription will be thought the more *elegant*. This lotion will speedily dry up the discharge, and in a short time no trace of the ugly looking crust will remain. Parents are highly delighted and very thankful when you thus accomplish the removal of a large disfiguring and disgusting scab, which they naturally enough felt apprehensive might leave behind it a corresponding scar. But it is quite superficial.

I have now done with the exterior membrane of the fore part of the eye—with its *mucous* membrane. In examining some of its diseases, we have had the opportunity of noticing several things which illustrate the pathology of the mucous tissues generally, and which exemplify the influence of other circumstances also, as well as of peculiarities of tissue, upon the morbid processes to which these membranes are obnoxious.

We have seen that the mucous surface of the eye readily enough takes on inflammation, under vicissitudes of external temperature, and from the agency of other atmospheric conditions; that the inflammation is apt to spread, often rapidly, over the whole surface of the membrane; and that, in some cases, it may be strictly limited for a long time together, or entirely, to the mucous tissue in which it began; but that when intense, or under special circumstances, it may dip through and extend to the subjacent textures: that, on the other hand, the inflammation sometimes occupies separate specks only of the membrane, and then is more likely to penetrate to the deeper seated tunics; that although the membrane is folded upon itself, so that different portions of it are mutually in apposition and contact, these opposing surfaces do not become adherent to each other under inflammation: on the contrary, that they readily pour forth pus. This tendency to the formation of pus I formerly shewed you to be commonly observable, whenever the air finds free access to the inflamed part. The pus thus poured out possesses the remarkable property of exciting the same kind of inflammation when placed in contact with any healthy mucous membrane of the same or of another individual; whether it be the conjunctiva of the eye, or the internal lining of the urethra. That the pus, in short, acts locally, upon certain parts at least, as a poison. And we perceive, in this fact, how a disorder that originates in common and accidental causes may become capable of propagating itself indefinitely—may become, in one word, *contagious*. We have seen also that the most intense inflammation may occur in this membrane, without exciting much or any constitutional disturbance; an illustration of the fact that the inflammation of mucous membranes is not so prone to light up fever, is not in general attended with so much pyrexia, as inflammation of some other tissues, and especially of the serous and fibrous tissues; and in proportion as this constitutional sympathy with the local disease is small or absent, so the influence of general bleeding upon the inflamed part is slight or ineffectual. The effect of a new and strong local irritation, in altering or superseding the original inflammation in some cases, has been illustrated in the treatment of purulent ophthalmia as it occurs in the adult subject. The influence of age in modifying the phænomena, and in qualifying the plan of treatment, has been made perceptible in the differences noticed in these respects, between purulent ophthalmia in infants, and in grown-up persons. We have witnessed, too, the remarkable characters impressed upon inflammation of the very same part, by the presence of the scrofulous diathesis. We shall hereafter meet with numerous examples of chronic inflammation, and the deposition of tubercular matter, and the formation of ulcers in consequence of the elimination of that matter, in other mucous membranes. Whether the phlyctenæ, or pustules, which appear upon the surface of the eye in strumous ophthalmia result from a similar separation of tubercular matter from the blood-vessels, near the extremities of which these prominences are placed, has not been clearly ascertained. One other lesson we have learned from this review of conjunctival inflammation, viz. that general bleeding, carried so far as to produce syncope, will sometimes completely empty the capillaries of an inflamed part of the red blood wherewith they were, just before, so turgid.

Iritis.—I shall next request your attention to a part of the organ which is strictly internal—the iris; that thin curtain with a circular aperture nearly in its centre, which hangs between the cornea and the crystalline lens, and is bathed on both sides by the aqueous humour. This little part, the office of which is to regulate the quantity of light admitted to the retina, is of exceeding interest in respect to its morbid as well as its healthy conditions. It is frequently the seat of inflammation: and, small as it is, the inflammation seems to be entirely confined to it, or to the surfaces immediately before and behind it. No doubt, with inflammation of the iris, there is in many cases inflammation of the choroid and retina also, and of the sclerotica. But the inflammation seems to make the iris its point of departure, and there it works its most striking changes. We cannot see so well what is the actual condition of the choroid and retina; but we have this proof, either that they do not always participate in the disease, or that they often suffer less than the iris: viz., that when the natural pupil has been closed up by lymph, and a new or artificial one has been formed, vision has frequently been restored.

The little cavity across which the iris is vertically stretched, is lined by a smooth membrane, which secretes the watery fluid always contained in the cavity. This membrane is analogous in its smoothness, in its forming a shut sac, and in the nature of its secretion, to the serous membranes met with in other parts of the body; it is analogous also to the serous membranes, in its behaviour under inflammation. It *is*, in fact, the serous membrane of the eye. Now we have the means of inspecting a portion at least of several of the *mucous* surfaces of the body; but this serous cavity, constituting the anterior chambers of the eye, is the only *serous* cavity into which we have the privilege of looking, and of noting what is going on, when the membrane that forms its boundary is inflamed; and this it is that makes iritis, to me, one of the most interesting of all diseases. There is no single part of the body from which you can derive so much instruction concerning some of the minuter processes of inflammation, and concerning the power of certain medicines over those processes, as you may by watching a few examples of inflammation of the iris.

All the changes which occur in iritis depend upon the circumstance that the inflammation, like that of the serous membranes generally, is of the adhesive kind; *i. e.* is attended with the effusion of coagulable lymph. By means of this lymph the form and the colour of the part are changed; the size and figure of the pupil undergo alterations, or that aperture is completely closed up; the motions of the iris are limited, or entirely put an end to.

The symptoms which characterize inflammation of the iris are very obvious; they require only to be looked at, to be perceived and understood: yet they long escaped notice, and even now are not always so carefully studied as they deserve to be. Not a great while ago I had to convince a surgeon of some pretensions, that he did not know this disease when he saw it. And English surgeons and physicians were all of them ignorant even of its existence as a distinct disease, until a most excellent account of it was published by a German, Schmidt, in the first year of the present century.

Symptoms.—What are these plain and obvious symptoms that were so long overlooked, or that were not understood when seen? They are the following: I will first enumerate them, and then speak of each rather more particularly:—redness of the sclerotica; a change in the colour of the iris itself, and in its general appearance; irregularity of the pupil produced by adhesion of the iris to the neighbouring parts; immobility sometimes of the pupil from such adhesion; a visible deposition of coagulable lymph: all these changes are apparent and conspicuous: scientific writers term them *objective* symptoms: then there are also the *subjective* symptoms, of which the patient alone is conscious—impaired sight, pain in the eye, and around it.

Redness.—The redness is such as I formerly described as resulting from the vascularity of the sclerotic. The cornea is surrounded by a zone of fine, straight, converging pink lines, very different in appearance from the tortuous, anastomosing, scarlet blood-vessels of the inflamed conjunctiva. These hair-like converging lines stop abruptly at the edge, or just before they reach the edge of the cornea; they dip through the sclerotic, in fact, to go to the iris. The vascular zone therefore is well defined in front, while it becomes fainter from before backwards, and is gradually shaded off; the posterior portion of the sclerotica being generally pale. As the disease advances, and in violent cases, the more superficial conjunctival vessels also sometimes enlarge, and mingle their tint of redness with that of the sclerotic, and more or less confuse or conceal it. Now this red zone or halo continues as long as the inflammation of the iris continues, and disappears when that ceases. It is an important symptom therefore.

Colour of the iris.—The change in the colour of the iris itself is also a remarkable circumstance: you know that what is called the colour of the *eye* is simply the colour of the *iris*. When lymph begins to be effused into the texture of this coloured part, it deepens, and at the same time alters, its tint: a grey or blue eye is thus rendered yellowish or greenish; a dark eye presents a reddish tinge. The change is such as would be produced by a mixture of the colour of the lymph with that which is natural to the iris. But besides a variation of colour, the peculiar brilliancy of the surface is spoiled; it becomes dull and tarnished as it were, and the fibrous arrangement, which is usually so evident, is confused or gone. The change commences at the inner or pupillary margin of the iris, and extends gradually towards the outer or ciliary edge. This is a symptom which you can scarcely overlook; it is rendered certain and unequivocal by comparing the sound eye with that which is inflamed.

Effused lymph.—The change of colour which I have been describing is occasioned by the effusion of lymph. But the same event of inflammation leads to various other changes, not less striking, and more important, in so far as the functions of the organ are concerned. The lymph becomes visible upon the surface of the iris. Its precise appearance varies considerably in different cases. Sometimes it presents little spots like freckles, or specks of rust; or a thin stratum of the same colour is deposited. Sometimes it exhibits the appearance of drops, or (as they have improperly been called) tubercles, embossing the surface, or projecting from its pupillary edge. These are commonly of a yellowish or reddish brown colour, and they vary in magnitude from the size of a small pin's head, to that of a large shot. There are seldom more than two or three of these masses. The lymph thus effused upon, or thrusting forward the surface, is confined almost always to that part of the iris which is nearest to the pupil, to the annulus minor; while its ciliary portion or annulus major is dull and clouded. Sometimes, when the inflammation is very violent, or the disease has been neglected, actual suppuration takes place; a reddish yellow prominence arises from the surface of the iris, and at length breaks, and discharges matter which sinks down to the bottom of the anterior chamber, and presents the appearance that has been called *hypopyon*. All these changes I say become perceptible near the margin of the iris; its free edge, which in the natural state is clear and sharp, becomes rounded and blunt; and at the same time the pupil often begins to lose its jet-black colour.

Another very common consequence of the effusion of lymph from and upon the surface of the iris, (from its hinder surface, that is, which is called the uvea, or from its pupillary edge) is its adhesion to the capsule of the crystalline lens, which lies, you know, behind the iris and very near it. And the pupil itself is apt to become blocked up by lymph.

The motions of the iris are seriously impeded by the mere effusion of lymph into its texture; at first it moves sluggishly under variations of the light; gradually the pupil contracts, and becomes fixed and motionless. The adhesion of the iris to the capsule of the lens still more decidedly restrains the action of the part. When it adheres at one or more points of the margin, and remains free elsewhere, the pupil is deformed; loses its circular shape; becomes angular; and this deformity is the most marked when the eye is examined under either a weak light, which allows the pupil to dilate, except at the points where the iris is tied down to the lens; or under a very strong light, which forces the free portions of the margin, and those only, to approach the centre. Still more palpable does the alteration of figure become when the pupil is artificially dilated.

The vision is always impaired in this complaint: partly because the posterior tunics of the eye are liable to be implicated in the inflammatory process; partly by the detriment done to the proper function of the iris, which duly measures the quantity of light admitted to the retina; partly by the presence of more or less lymph filling up the pupil; and partly by a change, not yet mentioned, which is apt to take place, especially in violent cases, in the cornea, and perhaps in the aqueous humour. The cornea becomes hazy and dull, and loses its bright polish; it looks like a piece of glass that has just been breathed upon. It has been thought (on the ground of analogy chiefly) that the aqueous humour grows turbid under the inflammation of the membrane that secretes it; just as serous effusion into the pleura is often found to be troubled and thick: but there is no evidence that this is the case. When the cornea remains transparent, the aqueous humour is seen to be clear; when the cornea is dim and semi-opaque, we cannot distinguish the state of the aqueous humour.

Acute iritis is attended with pain, and intolerance of light. To the latter circumstance is probably owing the contraction of the pupil during the progress of the inflammation; and then the lymph *fixes* the pupil in that state of smallness and contraction. There is pain in the eyeball itself, and in the parts about the eye, the brow and temple, most severe at night. There is much variety, however, in regard to the pain: sometimes it is constant and severe, but still more aggravated in nocturnal paroxysms. Sometimes, even when the quantity of mischief that is visible is very great, scarcely any pain at all has been experienced.

The same remark applies to the constitutional symptoms. In some instances these are but slightly pronounced: but in most cases, particularly in acute cases (for iritis, as I have hinted before, is sometimes a chronic disease) there is a good deal of fever and headache; the pulse is full and hard, and the tongue white, and the sleep is broken.

If the progress of the inflammation be not checked, it extends itself beyond its original seat. It creeps from the pupillary margin to the ciliary; and thence it passes on to the ciliary body, to the choroid coat, and to the retina; and as this takes place, the pain and the pyrexia increase, and blindness is usually the result. The delicate texture of the retina is spoiled for ever.

Treatment of iritis.—I have thus described the phenomena of iritis generally: and I will next consider, in the same manner, the treatment which it requires. It will afterwards be necessary for me to mention certain modifications of the disease, in respect to its rapidity, its causes, and the circumstances under which it occurs: I say it will be necessary to mention these modifications, because they require a corresponding modification in the plan of treatment.

When we have to deal with iritis alone—that is, when the inflammation and the changes to which it may have led, are confined to the iris, the disease is always, I believe, manageable; and affords a beautiful instance of the power of well-directed remedial measures. We cannot always tell whether the inflammation has been restricted to the iris or not.

We have three powerful weapons wherewith to combat iritis: *blood-letting; mercury;* and a remedy that hitherto has not been mentioned in these lectures, *belladonna*.

If I was restricted to the use of one of these means, I should choose mercury; if to two, mercury and belladonna; but the combined employment of the three has the most powerful effect in curing the disease: and cases that have seemed almost desperate, have been retrieved and rescued by these remedies.

Blood-letting.—With respect to blood-letting, I shall not run the risk of fatiguing you by dwelling at any length upon the mode in which it should be employed, or the indications for its adoption. I shall content myself with saying that the intensity of the local symptoms, especially of the pain,—and the degree in which the general symptoms, the fever, and the hardness of pulse, are present,—offer the best measure, both of the necessity for bleeding, and of the amount to which it ought to be carried. Both will depend somewhat also upon the strength and constitution of the patient. Bleeding from the arm till some decided impression is made upon the circulation; cupping from the temples; or both these modes of taking blood, together or in succession, will often be required. At the same time active purgatives should be exhibited; and the whole of the antiphlogistic regimen strictly enforced.

But bleeding assisted by purgatives and the antiphlogistic regimen will not cure the disease; or it will not cure one case in a hundred. It will *stop the inflammation* probably, but not till the organ has been spoiled. Such a termination cannot with any propriety be called a cure. We want not only to put an end to the inflammatory process, but to repair the mischief which may already have been done.

Yet bleeding is not to be despised or neglected because it is unequal to the cure of iritis: it is productive of direct benefit by abating the force of the circulation, and by checking the progress of the local inflammation: and it is productive of great indirect benefit by preparing the system to submit itself more readily and rapidly than it otherwise would, to the specific influence of mercury. Mercury is our sheet-anchor in this disease.

Mercury.—After free blood-letting then, or after such abstraction of blood from the system, or from the part, as the circumstances of the case may dictate, you must administer mercury in the manner that I formerly recommended. The object is, in acute cases, to affect the gums as speedily as possible; the soreness of the gums, and the peculiar fœtor of the breath, being the warrant that the whole capillary system feels the specific influence of the remedy. Calomel with opium is, in most cases, the best form in which mercury can be introduced into the system; the purpose of the opium being to prevent the calomel from running off by the bowels. Two, three, or four grains of calomel, with one-fourth, one-third, or one-half a grain of opium, should be given every four, or six, or eight hours. Equal doses at equal intervals.

Some persons prefer giving the calomel still more frequently; one grain, for instance, with one-tenth or one-eighth of a grain of opium, every hour. If the gums do not rise in the course of thirty-six or forty-eight hours, and a speedy effect is desirable, inunction of the mercurial ointment should be added. And in some cases mercurial frictions alone may be sufficient, and the most expedient. Or the hydrargyrum cum cretâ, five or ten grain doses.

You may have bled your patient freely, and purged him well, and yet, on looking into his eye, you perceive the mischief to be still going on, and the deposition of lymph increasing. But the instant that his gums and breath acknowledge the specific agency of mercury upon his system, a welcome change becomes visible: the red zone surrounding the cornea begins to fade; the drops of lymph to lessen; the iris to resume its proper tint; and the puckered and irregular pupil once more to approach to the perfect circle: and, at length, in favourable cases, the eye is restored to its original integrity, and beauty, and usefulness.

I speak now of favourable cases: the changes for the better that I have been describing are sometimes rapidly accomplished, and sometimes slowly. If the disorder has been long neglected, irreparable damage may have been done; the effused lymph may have become organized; or firm adhesions may have been already contracted between the iris and the lens. But even in cases of some standing, when the inflammatory action has in a measure subsided, the use of mercury will sometimes greatly improve, sometimes altogether restore, the impaired vision.

Belladonna.—With the mercury, both before and while its specific influence is manifested, we combine the use of belladonna.

Doubtless you are all aware of the singular effect of this vegetable poison upon the iris. It dilates the pupil. Now it is of great importance in iritis to prevent that tendency to contraction which the pupil manifests. If we can artificially dilate the pupil, we may prevent the iris from forming adhesions with the capsule of the crystalline lens; and if it has recently contracted such adhesions, we may, while the lymph is yet soft, stretch or break them. And this power of artificially dilating the pupil we possess in the agency of belladonna, and certain other narcotic vegetables. This remarkable effect of the belladonna was first discovered, accidentally, by our countryman, the celebrated Ray. He tells us that a noble lady of his acquaintance applied a leaf of the plant to a small ulcer, suspected to be cancerous, just below one of her eyes. The pupil of that eye became greatly dilated, and the membrane remained motionless under the strongest light. This effect gradually subsided when the leaf was removed. But it took place on three several occasions, and was witnessed by Ray himself. Other vegetables have the same property; henbane, for example, stramonium, and the cherry laurel. And there are others which have it not, although we might have expected that they would possess it, from the analogy they bear to the former in other respects. It has been ascertained that neither hemlock, nor aconite, nor foxglove, nor opium, have any such power.

Preparations of *belladonna* are chiefly, if not exclusively, employed in ophthalmic disorders in this country. It is used in two ways. The extract is rendered soft and semifluid by admixture with distilled water, and then is smeared freely around the eye, upon the lids, and brow, and forehead. It is washed off after remaining an hour: it generally produces a marked effect upon the pupil.

A more efficacious and speedy mode of dilating the pupil is to drop a solution of the extract *into* the eye itself. The solution is to be made by rubbing down a scruple of the extract in an ounce of distilled water, and filtering the fluid through linen. Two or three drops of this solution are to be introduced between the eyelids.

Some very interesting experiments have been made in Germany by Dr. Reisinger upon this property of belladonna and hyoscyamus, of contracting the iris—in other words, of dilating the pupil. The result of these experiments is given in the 24th volume of the *Edinburgh Medical and Surgical Journal*. Dr. Reisinger procured the active principles of these plants, *atropine* and *hyoscyamine*, and made comparative experiments with these principles, and with the coarser extracts; and he concludes that the former are much to be preferred to the latter. Thus he dissolved a grain of hyoscyamine in ten minims of water, and introduced a small drop of the solution into the eyes of several dogs and cats. No irritation whatever of the eye was produced in any instance, but the pupil was so much widened by the application, that in an hour's time only a small ring of the iris could be seen beyond the edge of the cornea; and after three hours, the pupil seemed as large as the cornea itself. The dilatation did not begin to diminish till after three days; and the pupil did not recover its natural dimensions until the sixth day Then he applied a solution of the *extract* of hyoscyamus, made by mixing five grains with ten minims of water. This evidently caused irritation of the organ, which lasted from five to eight minutes, and was evinced by a discharge of tears, by the animal's shutting its eyes, and rubbing its eyebrows with its paws. Much less dilatation of the pupil followed, and lasted not more than six or eight hours in dogs, and about twenty-four hours in cats. As soon as Dr. Reisinger had satisfied himself that the hyoscyamine had no injurious influence either on the conjunctiva, or on the deeper seated textures of the organ, he applied it to the human eye. He dissolved a grain of hyoscyamine in a drachm of distilled water, and inserted a drop of the solution into the eye of an old lady of 71, who had cataract. So great was the consequent dilatation of the pupil, that only a narrow ring of the iris remained visible. No irritation whatever of any part of the eye was produced; and the dilatation continued for seven days.

As chemistry is now furnishing us every day, in greater abundance, and with more ease, the active principles of various of our medicinal vegetable substances, we shall soon, in all probability, adopt hyoscyamine or atropine, for artificially dilating the pupil, instead of the preparations now in use. Till that time arrives, you had better smear the surrounding skin with the moistened extract of belladonna whenever the eye is painful or much inflamed. But under other circumstances, the solution dropped into the eye is to be preferred for its readier action, and its greater power. The use of this curious virtue possessed by certain plants is not confined to the cure of iritis: it enables the surgeon to introduce instruments through the pupil with greater facility and safety; it affords us also the means of examining the deeper seated textures of the eye; and it is of great service to many persons who are partially blind; to such, for example, as have central specks on the cornea, or central opacities of the crystalline lens: it enables such persons to enlarge the window of the eye; to receive more light; and to have the images of objects painted upon the retina, and represented to the mind; objects which, but for the mysterious agency of these poisonous vegetables, they could never hope to see at all. It is a very fortunate circumstance that the power of the belladonna over the iris does not diminish by repetition. Mr. Lawrence mentions two patients of his, one of whom had used it habitually for four or five years, and the other for fourteen or fifteen; and it dilated the pupil just as well at the end of these periods as at the beginning. By carefully examining an eye in which lymph has recently been effused, we may distinctly see the good effects of the artificial dilatation of the pupil: little strings of adhesion are often visible, connecting the edge of the iris with the surface of the lens; and these are stretched, and not unfrequently broken, under the influence of the belladonna: and minute black spots may sometimes be seen upon the capsule, marking the points where the uvea had stuck, and where it left behind it, when it was detached by the belladonna, a portion of its peculiar pigment. These black points are indelible. There is one case recorded in which the pupil, after being dilated by belladonna, became fixed in that condition; probably by lymph subsequently effused into its texture, and binding together its fibres. Even this is better than that the pupil should be *contracted* and fixed.

These three remedies, then — bleeding, mercury, and belladonna, are the means by which we are to subdue inflammation of the iris, and repair the ravages it has occasioned. With respect to the most important of the three, mercury, there are two or three points that require to be farther noticed.

You may ask to what extent the mercury should be pushed, and how long it should be continued?

Why we have, in iritis, an illustration of what I have more than once mentioned before, viz. that the rapidity of a disease will require a corresponding haste in the use of its remedy. In acute and violent cases, the mouth should be made decidedly sore, as quickly as possible; and when that has been done, the farther administration of the mercury may be suspended. "Full salivation," says Mr. Lawrence, "quickly produced, cuts short recent disease, as if by a charm." In cases of longer standing, or of slower progress, we must be slower in the introduction of the remedy: it will be enough to obtain any, the smallest certain evidence of its action, in the gums and breath; and we must keep up that moderate influence for some time. For what precise time it is impossible to say; but till the redness is gone, and the natural colour of the iris returns, and all the visible lymph has disappeared, and the sight is perfectly restored: and this *may* require a month or two.

When you look from day to day into the aqueous chamber of an eye in which iritis has recently produced its peculiar changes, and after the due effect of mercury upon the gums has been achieved, you will be surprised as well as delighted to see large masses of lymph rapidly disappear, melt away, as it were, from the surface of the iris, while that which had been deposited in its intimate texture, rendering it confused and discoloured, as quickly clears off. And you will be inclined to believe, as many have done, that mercury has a vast influence in promoting and accelerating absorption. It *may* have such a power; I am not disposed to deny it: but that it really has so we cannot safely infer from such circumstances. It clearly has the power of arresting the deposition of lymph; of putting an end to the adhesive inflammation: whether it does any thing more towards completing the cure, we have these reasons for doubting. When blood happens to be effused into the anterior chamber; or pus; or when, as frequently happens, pieces of a cataract that has been broken up pass through the pupil, and shew themselves between the iris and cornea; they (the blood, the pus, the fragments of the lens) disappear, *i. e.* are absorbed, just as rapidly as the lymph in iritis, although not a particle of mercury is taken. Mr. Lawrence even gives a case of syphilitic iritis, which got well without any affection of the gums by mercury, and which had been marked by the deposition of a large mass of lymph on the iris; and he says that the lymph was immediately absorbed, as soon as the inflammation ceased; and that he never saw it disappear more quickly under any circumstances.

There is one local use of mercury which I must not omit to mention, because though it probably has no share in *curing* the complaint, it is productive of great comfort and relief to the sufferings of the patient. It is adapted to those cases in which severe pain is felt round and over the orbit of the eye at night. Ten grains of the strong mercurial ointment, intimately mixed with two grains of finely powdered opium, and well rubbed into the temple a little while before the nocturnal pain is accustomed to recur, will in many cases completely prevent it. We owe this piece of practice to the Germans.

Causes of iritis.—Iritis is apt to occur from different causes, and in connection with different diseased states of the system. It is no uncommon accident from surgical operations performed upon the eye, the iris suffering mechanical injury. The inflammation thus excited is usually violent and acute, and requires that the whole plan of treatment that I have been sketching out should be actively prosecuted.

But inflammation of the iris sometimes arises slowly and insidiously, without vascularity enough to call attention to the eye, and without pain. This generally happens when the eye has been strained by over use: in women who occupy themselves with fine needle-work; in engravers, and such as are accustomed to look at *minute* objects, or at *bright* objects. A more common effect of continued exertion of the eyes in this way, is a diseased state of the *retina;* but (however the fact may be explained) the iris is sometimes the part that suffers. In this form of the disease mercury will often be found a successful remedy; but its influence must be gradually brought about; and it is not so certainly productive of benefit as when it is employed in acute iritis:—probably because the chronic inflammation has involved the posterior tunics also.

But most frequently iritis is met with in combination with syphilitic, or with rheumatic disease, which manifests itself at the same time in other parts of the body. Syphilitic iritis is more common than any other. It is one of the *secondary* symptoms of syphilis; and accordingly it is commonly associated with other *secondary* symptoms; with syphilitic eruptions, nodes, pains in the limbs, and ulceration of the throat. It is also one of the *earlier* of these secondary affections, and therefore is sometimes the only one to be seen; and occasionally it declares itself before the primary disease is well. The pain that attends this species of iritis is chiefly felt at night, but at that time it is apt to be very severe and distressing, so as entirely to prevent sleep until it takes its departure in the morning. We cannot, I believe, distinguish syphilitic iritis with any certainty from other acute varieties of the same complaint, by mere inspection of the eye. However, there are some points worth remembering in respect of the local phenomena it most commonly presents. Syphilitic iritis is never attended (according to Mr. Lawrence) with *abscess* of the iris, and hypopyon; the lymph is usually deposited *in distinct masses;* and the pupil becomes angular, and is not unfrequently displaced towards the root of the nose, by the adhesions which the iris has contracted with the parts behind it. In another variety of inflammation of the iris (which I shall mention to-morrow, *arthritic* iritis) lymph is equally effused from the margin of the iris, but it is not usually deposited in a distinct drop-like form. We ascertain the variety of iritis with which we have to do by these peculiarities; by the co-existence of other tokens of syphilis; by the periodical character of the nightly pain; by taking into our account the age, the constitutional habit, and the probable state of morals of our patient. Syphilis, you know, is not uncommon in children; it is sometimes even congenital: but it very seldom affects the iris at that early period of life. Among a large number of syphilitic children brought to Mr. Lawrence, he never witnessed iritis but once. It was in *syphilitic* iritis that the curative power of mercury over adhesive inflammation was first distinctly recognized. But you must not fall into the error of supposing that the success of the remedy depended upon the specific character of the disorder; upon its connection, I mean, with the venereal virus. Mercury is fully as serviceable and as sure in common acute inflammation of the iris. Upon this point all men of experience are agreed. "Its influence (says Mr. Lawrence) is not confined to the syphilitic form of the disease, but extends *equally* to the idiopathic." And Dr. Farre bears testimony to the same effect.

PULMONARY EMPHYSEMA.

To the Editor of the Medical Gazette.

SIR,

THE attention of the medical public has recently been called to the subject of pulmonary emphysema, by an excellent paper on the subject by Dr. Budd, in the Medico-Chirurgical Transactions. A paper on the same subject was read at the Société de Physique et d'Histoire, in the year 1837, by Dr. Lombard, of Geneva, who favoured me with a copy of it. As it contains a great deal that is still new upon the subject, I have endeavoured to give such an abridgement of it as will explain his views, which, being founded on anatomical investigations, I believe will be interesting to your readers. The beautiful coloured illustrations are not the least valuable part of the work, and from them I have selected one figure which will serve to illustrate the author's views.—I have the honour to be, sir,

Your obedient servant,
R. H. GOOLDEN, M.D.,
Fellow of the Roy. Coll. of Phys., Physician to the Seamen's Hospital, Dreadnought.

8, John Street, Adelphi,
Jan. 19, 1841.

Magendie, in some papers published in 1821, has shown that the number of the *pulmonary vesicles* decreases, and that the dimensions of each vesicle increase with the advance of age, so that the lung which is dense in the infant is less so in the adult, and is still further rarified in old age. This fact has been confirmed by the researches of MM. Hornman and De Chambre, especially in reference to the atrophy of the lung in old persons.

Pulmonary emphysema appears to be very like this atrophied state of lung, except that it affects adults and children, though more seldom than the aged. There is the same anatomical condition, but in the emphysematous lung the dilatation is greater than in the lungs of old persons.

The Anatomical Characters of Pulmonary Emphysema.

M. Lombard considers that there are three distinct forms of pulmonary emphysema, designated according to the extent of lung affected in each.

1. When the lesion is confined to

some isolated vesicles, the emphysema is then termed vesicular.

2. When a whole lobule is affected, which is the most common case, we then have lobular emphysema.

3. When the same lesion affects an entire lobe, it is called *lobal* emphysema.

1. *Vesicular emphysema.* — The air cells of the lungs, when they are emphysematous, may either be isolated or collected in groups of three or four. Their situation is usually at the border of the lung, though they are occasionally found elsewhere. They elevate the pleura, forming small vesicles very like pemphigus. These vesicles are larger than they appear, since the projecting portion is less than that which is excavated within the tissue of the lung.

When the vesicles acquire considerable size, they are invariably formed by the union of several air cells, the walls of which have been destroyed. The cases of simple dilatation of an air cell resulting from true hypertrophy must be very rare, as M. Lombard has not met with one; and all those which he had an opportunity of dissecting, which were at first single in appearance, were found upon examination to consist of several cells, their internal surfaces presenting anfractuosities and lamellæ, traces of old intervesicular partitions.

2. *Lobular emphysema.*—This form consists in the dilatation of the air cells in an entire lobule; not that they are all equally dilated, but that the whole lobule must be more or less in this morbid condition: the divisions of the lung, and the independence of each lobule, being easily traceable in this second form.

As the enlargement of isolated cells produces the vesicular appearance, which in the first form was compared to pemphigus, so in this second form the enlargement of an entire lobule causes a hernia from the lung, which projects like an additional lobule.

This explains the formation of the *lobular appendices* which are found attached to the margins of the lungs.

If we observe the pedicles by which they are united to the lung, we find them in some cases to be formed of dense cellular tissue, without any trace of air cells; in others we may detect the air cells unobliterated, shewing a communication between the emphysematous appendix and the rest of the lung. The pedicles vary in length, but are usually so short that the appendix appears to be attached immediately to the lung.

In these hydatiform or lobular appendices are found all the varieties of emphysema, from the unequal dilatation of a few cellules to the destruction and coalescence of all the vesicles into one single cavity.

The *cavities* of emphysematous lobules differ in size, their diameters varying from the fraction of a line to one or two inches; their inner surface is anfractuous and lamellated, or else they are crossed in every direction by shreds of a tissue like small transparent laminæ, which, when detached, are of a pearly white colour like the laminæ of an onion. This indicates the formation of these cavities by the destruction of the walls of several smaller cells. When in an emphysematous lobule some of the cells only are increased in size, they are usually those which are the most superficial, and the lesion is the greater in proportion as the cells are situated further from the centre and more towards the surface of the lobule. A lobule is never found to be emphysematous in the centre, and normal at its periphery. The air cells which are situated at the surface of the lung are more easily and to a greater extent distensible than those at the centre, because at the surface of the lung the extension of the pulmonary tissue is opposed by the pleura alone, which, with all the serous membranes, has the properties of perfect flexibility and distensibility.

3. *Lobal emphysema.*—The emphysema which occupies an entire lobe presents two very distinct varieties.

In the *first* the lobules are all emphysematous, but in very different degrees.

The *second* is where all the tissue of a lobe or even of a whole lung is changed into a spongy mass, so bulky that one would imagine it to be hypertrophied; but, as will be seen presently, this augmentation of bulk depends upon atrophy and not hypertrophy of the areolar tissue, which, having lost its elasticity, suffers itself to be distended by the air inspired.

The natural state of the lung in people of an advanced age approaches the second variety of emphysema lobare.

When the dilatation is uniform, and

throughout an entire lung, several circumstances are observed which it is important to remark.

1stly. The vesicles, although *apparently* similar in form and size, ***are not so***, some being distended to three or four times their natural state, whilst others are scarcely enlarged at all. In some portions of the lung the anfractuosities are found very distinct, whilst in others the tissue does not present any well marked solution of continuity.

2dly. The obliteration of the blood-vessels, or at least their diminution in number and size. The tissue of the lungs in its normal condition is of a deep red colour, and traversed in all directions by a number of capillaries, whilst in the emphysematous state it is like a honey-comb, and nearly bloodless.

3dly. The destruction, or at least the dissolution of the cellular tissue, which in the normal state separates the lobules, so that the divisions of the lung and the independence of each lobule, which were observed in the second class or lobular emphysema, are no longer traceable, whence the lung appears uniform and without intersections throughout the whole extent of a lobe.

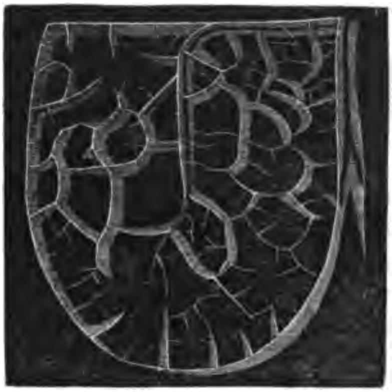
The Theory of the Formation of Pulmonary Emphysema.

The question is, whether the enlargement of the air cells depends upon hypertrophy, or by the union of several single cells, which are distinct in the normal states, but united into a single cavity by the obliteration of the intervesicular walls. Laennec and Andral considered that emphysema might result from either, but Louis and Stokes attributed it to hypertrophy.

On examining a slice of lung previously dried, by the microscope, we find that the increase of volume of the lung does not at all depend upon the thickening of its tissue, which, instead of being dense and firm, as it would be if it were hypertrophied, is light and pervious; the intersections of it are either demolished, or are so much attenuated, as to be transparent.

The figure represents the appearance of a section as seen under the microscope; it has been sliced off with a razor from an emphysematous lobe, and placed on a black ground, in order to bring out the details.

Superiorly and a little to the right the pulmonary tissue is seen nearly in a healthy state; the vesicles continue sound, and appear to occupy the whole space. In the centre and towards the left the large divisions only are observed, most of the vesicles and intervesicular walls having there disappeared, and at the lower part even those large partitions are broken up to give existence to cavities of still larger dimensions; but there may be observed traces of former partitions, having the appearance of plates loose at one of their edges, and attached by the other to the internal surface of the cells; they form processes very like the alveolar partitions of a honey-comb.



The attenuation and transparency of the intervesicular walls, their loss of colour, and elasticity, are evidently caused by the destruction of the blood-vessels which traverse the lung in every direction when it is in a healthy state, and form of it an erectile tissue, as it is described by Bourgerie.

Obliteration of the capillaries is a pathological condition invariably found in emphysematous lungs: the figure shews how the blood-vessels, which appear like threads, stop abruptly in the large divisions, instead of being distributed all over the vesicles.

Thus in pulmonary emphysema it is shewn that there are two pathological conditions which are essential to its existence.

1st. The destruction of a considerable part of the intervesicular walls, and the coalition of several air cells which were originally distinct, into one irregular cavity.

2d. The obliteration of nearly all the

capillaries in the emphysematous portion.

To complete the pathology we must trace the relation which these two conditions bear to each other as cause and effect, by ascertaining which of the two necessarily precedes the other.

Did the destruction of the intervesicular walls precede the obliteration of the blood-vessels, hæmoptysis would evidently be one of the most constant symptoms of the disease at its commencement; and this hæmorrhage would be considerable, for we see whole lobules of three or four inches circumference changed into single cavities, which remain constantly open, and are large enough to contain a walnut. But of 35 cases observed by M. Louis, only one was affected with hæmoptysis, and this one subsequently shewed signs of tubercles: from which it may be inferred that hæmoptysis is not one of the symptoms of emphysema, and, consequently, that the destruction of the intervesicular walls does not precede the obliteration of the blood-vessels.

According to the law in pathology that when an organ is no longer useful it becomes atrophied, shrinks, and at length disappears; when the pulmonary tissue ceases to be supplied with blood-vessels, the walls of the vesicles become attenuated, and finally disappear, leaving those anfractuous cavities which constitute emphysema; the walls of these cavities are atrophied, have lost their elasticity, and are consequently incapable of expelling the air.

From this result two important phenomena.

1st. The permanent state of tumefaction of an emphysematous lung.

When the chest is opened, and atmospheric pressure is allowed to act upon the lungs externally, their natural elasticity causes them to collapse; but when any portion of them is emphysematous its elasticity is destroyed, and there remains no force sufficient to expel the air from the diseased part. This gives it the appearance of being forcibly inflated, and accounts for the increase of volume which has led some anatomists to consider emphysema as an hypertrophy of the pulmonary tissue.

This increase of volume, even where the lungs protrude when the thorax is opened after death, is not repugnant to the supposition that the lung be in a state of hypertrophy, and consequent inelasticity. For during life the thoracic cavity was preserved at its largest dimensions by the action of the inspiratory muscles, and the emphysema has progressively increased until even this preternaturally enlarged cavity was almost or entirely occupied by distended lung. When in death the inspiratory muscles are relaxed, the thoracic cavity would sink to its natural dimensions were it not supported by emphysematous lung, in which state it is firmer and more difficult to break down than when it is healthy and crepitant, for the same reason that the healthy lung is firmer under pressure than one which is engorged and hepatized.

2d. The lobular appendices, where the lobules instead of preserving their primitive forms become herniæ, and really increase its volume. But even in this case there is no true hypertrophy, for the pulmonary tissue, so far from being more dense and solid, as would be the case were it hypertrophied, is, on the contrary, preternaturally distended and almost destroyed. It has been supposed that the efforts of coughing play an important part in this distension of the lobules, and Laennec thought that emphysema was the result of bronchitis; but M. Louis' observations contradict this opinion, who ascertained that in one-fourth only of the subjects of emphysema observed by him, was there sufficient cough to account for the dilatation of the air cells until after the existence of dyspnœa, when the emphysema might be considered as already established.

The increase of volume is attributed by Dr. Lombard to the expansion of the air confined in a tissue of a much higher temperature than the atmosphere, where the tissue being no longer supplied by capillaries has lost its elasticity.

I think such an explanation far from satisfactory. If a stove be lighted in a cold room, as it raises the temperature of the atmosphere it does not increase the barometric pressure unless the room be first made air tight. I believe the emphysematous lobule to be in the same category with the warmed room. The lobule must be made air-tight by blocking up the entrances or bronchial tubes leading to it, before the increase of temperature can cause dilatation, and the evidence is rather against the fact of there being obstructions in those tubes. But supposing (which is more probable) that the pressure of the atmosphere throughout the whole bronchial canals be very nearly equal, it is natural to expect that it would the most distend the weakest lobules, or rather those lobules which have the least elastic force to oppose the pressure; and if there be a few lobules much less elastic than the rest, they would naturally be distended and left in a condition presenting the appearance of hydatiform appendices. This, I believe, would be a sufficient explanation of the mode in which emphysema is developed, without having recourse to bronchitis for an exciting cause; at the same time we must admit that coughing, playing on wind instruments, straining for any length of time, when the breath is held, in order to fit the chest for athletic efforts, must tend more speedily to develop the disease.

Pulmonary emphysema is, therefore, a morbid condition of lung, commencing with the obliteration of the capillaries, which afterwards destroys the air cells, changing them into large membranous and irregular cavities: it is a partial destruction of the organ, which renders it perfectly useless for the purposes of respiration.

An Explanation of the Symptoms of Emphysema of the Lungs, by the nature of the Anatomical Lesion.

The symptoms may be divided into two groups.

The one is the immediate consequence of the retention of air within the lung. The other is produced by the obstruction of the circulation, and inaptness of the diseased portion to perform the function of respiration.

To the first group belong—

1. The sonorousness of the chest; since a considerable quantity of air remains confined within the lung.

2. Distortion of the chest. It is a common observation, that the walls of cavities mould themselves to their contents; and if the lung continues permanently in a state of distension, the chest will be developed in the same proportion.

3. Absence of the respiratory murmur, the natural consequence of the fulness of the lung, which, being already distended to the utmost, can receive no more at each inspiration.

4. Atrophy of the inspiratory muscles, which Dr. Stokes has remarked as the consequence of the forced extension in which they are maintained by the morbid distension of the lung, and which may in a measure account for the weakness of the inspiratory sound.

To the second group belong—

1. Palpitations.

2. Hypertrophy and dilatation of the right ventricle.

3. Dropsy, resulting from the obstruction to the pulmonary circulation through the morbid lung.

4. Dyspnœa, where there is a greater supply of venous blood than the diseased lungs can arterialize. This explains the various causes producing a paroxysm of asthma; such as exercise, mental emotion, stimulants, which increase the circulation, a full stomach, the recumbent posture, preventing the descent of the diaphragm, obstructions of the air-cells or lobes, which prevent the lungs from using their full power in performing the respiratory function.

5. The frequency of pulmonary catarrhs, the result of the increased activity of the healthy parts of the lung, in those patients in whom a whole lobe, and frequently a whole lung, is perfectly useless for the purpose of respiration.

AN ACCOUNT
OF SOME
CASES OF UNNATURAL NARROWNESS OF THE AORTA,
AND OF THE CONSEQUENCES OF THIS MALFORMATION;
With Observations on the Causes which produce the Communications between the two sides of the Heart.

By T. Wilkinson King,
Lecturer on Pathology at Guy's Hospital.

[*For the Medical Gazette.*]

Writers on the heart do not appear to have noticed the fact that the aorta is every now and then to be found disproportionately small, and still less have they considered the consequences of this congenital defect, although it is probable that most museums contain some illustrations of these circumstances, which, however, have been hitherto overlooked. I have thought it well to bring forward the present topic, in connection with some others which may appear naturally to belong to it, and I hope that the several points will assist to elucidate each other.

It is first proposed to relate the chief particulars of some cases in which the aorta was found unusually narrow, along with general signs of a difficult circulation, but without any perversion of the course of the blood; in the second place, to consider the circumstances which produce the communication of the ventricles; and thirdly, those which cause imperfection of the septum of the auricles. It seems scarcely necessary to say that these last explanations are still wanting in the pathological history of the heart.

Cases of Preternatural Narrowness of the Aorta.

M. Bouillaud relates the appearances of the heart of a leucophlegmatic girl, between 17 and 18 years of age; and in this case, probably, the primary difficulty in the circulation was in the aorta, which was 1 inch and 10 lines in circumference. The heart was nearly twice as large as the girl's foot, with general dilatation and some thickening. All the other orifices were dilated.

M. B. gives the circumference of the aorta, as deduced from measurement, in four men, between 16 and 24 years of age, as follows:—

Mean, 2 inches and 5½ lines French.
Max. 2 ,, ,, 8 ,, ,,
Min. 2 ,, ,, 4 ,, ,,

Dr. Guy, of King's College, has favoured me with the following results obtained by himself and Dr. Rankin, from careful examinations, made some years since at Guy's Hospital, on healthy adult hearts. The parts were measured in ten males and in nine females. The numbers express inches and lines:—

	Max.	Min.	Med.
In Males, the circumference of the aorta,	3 5	2 3	2 9
In Females	2 11	2 1	2 5

M. Bizot gives a mean for all adult males, of 45 lines; and for all adult females, 41 lines.

The last I quote from the Cyclopædia of Anatomy and Physiology. The measure is, I presume, French, since the same article contains the French measurements of Bouillaud.

Taking the French inch to be 1-13th more than the English one, M. Bouillaud's case, quoted above, had the aorta a little less than two inches in circumference (of our computation), while his mean, taken from males, is pretty exactly as that of Drs. Guy and Rankin; which last, however, is more general.

M. Bizot's mean for all adult males is about half a line short of 3½ inches; that for females is about 3 inches and 2 lines (English).

With respect to the minimum circumference of the aorta, measured, as it is said, in healthy hearts, I make very little hesitation in concluding that it is estimated below the truth, being taken chiefly from cases of wasting disease: thus the calculation of the mean may be also reduced too low, especially when it is to be compared with the examples of which I treat, which are cases of undue arterial distension or tendency to dilatation.

Lastly, it ought to be remembered that the minimum is at least a disadvantageous state; and farther, in the cases of Drs. Guy and Rankin, which I have had the opportunity of observing, I suppose that it ought rather to be regarded as a morbid proportion, and liable, under other circumstances, to give rise to the consequence we are about to consider.

CASE I. (22d[*] 10th mo. 1840).—William Hogg, æt. 22, a labourer, from Essex, short and thickly set, with a short neck and full face, which is also florid and of a bluish tint. When a boy, his complexion led to his being called "the rising sun." His health and habits have been good. Last winter he was confined for months to his bed, with a rheumatic affection, from which he seemed to recover completely; but about the beginning of June he discovered that his abdomen and legs were swollen, and he had palpitations. Four months later he was universally dropsical, his urine coagulable, his pulse slow and weak. A communication between the two sides of the heart was anticipated, from the consideration of his bluish complexion and full face. At bed-time there seemed to be no immediate danger. He died at two in the morning.

The body was excessively œdematous and livid.

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[*] The dates may serve for all purposes of reference to records or specimens in Guy's Museum.

The heart was adherent only about the left auricle posteriorly, by old and copious cellular membrane. The pericardium contained some ounces of fluid. All the cavities of the heart were greatly distended with blood; the two left, perhaps, the most. The auricles were hypertrophied very considerably, and the right ventricle still more so. The right auricle seemed the least altered of all the cavities. The tricuspid seemed only too close a valve. The valves of the pulmonary artery had full corpuscula; the circumference of the vessel here was above three inches, and its walls appeared thicker than those of the aorta, the circumference of which, above the coronary arteries, was just two inches. The coats of the aorta seemed quite natural; its crescents were rather thick and opaque, contracted and irregular; two corpuscula were large, the third was lost, and the free edge of its crescent had a granular fringe. The sinuses of Morgagni were a good deal dilated. The mitral valve was extensive, its orifice dilated, and its closure imperfect. The apices of the valvular muscles were acute and white, indicating much traction by the dilatation of the ventricle. The edges of the mitral were a little thickened and indurated, and slightly (minutely) granular. Parts of this valve, as well as the posterior lining of the auricle, presented a firm, reddish, translucent, rugous thickening. The septa of the heart were entire, but beneath the posterior and right aortic crescents the ventricular septum was membranous and thin, transmitting light, and at a point but just closed: this is the spot which perforations almost constantly occupy. There was much old pleuritic adhesion, and the lungs were full of fluids.

The remainder of the body was not examined.

Case II. (19th 6th mo. 1837).—Sarah A. C., æt. 22, a respectable young person, of fully developed frame, who had formerly had rheumatism, and had suffered with symptoms of diseased heart for five years. Bronchitis and anasarca supervened, and finally she became hemiplegic. The brain was vascular. The inferior grey plane of the right corpus straitum was softened, too translucent, and of a dull pale and somewhat yellow tint; it appeared also a little tumid. The neighbouring part of the thalamus was similarly, but less severely altered; and it was more injected.

The lungs were pretty generally and firmly adherent: they were emphysematous and watery, and contained three or four apoplectic masses about the size of small oranges, rather firm, and dark, and ill defined. One or two other spots were less dark and close-textured, and perhaps attributable to pneumonia. Some vessels were plugged with black clot.

The air tubes were much dilated, and clogged with firm mucus. The right auricle was widely dilated with recent coagulum. The safety valve, under experiment, closed very imperfectly: its curtains were a little thickened and contracted. The right ventricle was capacious, and in a very unusual degree hypertrophic. The left auricle was large, and seemed somewhat to compress the left bronchus.

The mitral opening was a pretty large button hole; its edges thick, rough, and osseous: it closed well under injection. The left ventricle was rather small, thin, and flabby, and of a dull hue. The arterial valves were all healthy: the aorta was decidedly small. The liver was indurated, and like nutmeg. The spleen too fleshy and very dark. The pancreas rather loose in texture. The kidneys were of fair size and colour, but firm. The generative organs were not large; the ovaries were enveloped in adhesions. The intestines were œdematous, and turgid with blood.

Case III.—The specimen 1391-25. In Guy's museum is a "heart enlarged, with its apex blunted, chiefly in consequence of the dilatation of right ventricle, the parietes of which are somewhat thickened, and altered in texture: the right auricle is likewise dilated. From a young man, 22 years of age, who had laboured for some months under palpitation, anxiety, and dyspnœa, with effusion into the thorax." In this heart there is general dilatation. The aorta, in comparison with the pulmonary arteries, is decidedly narrow. The fossa ovalis seems imperforate. This person had a somewhat misshapen chest; his occupation was in cutting whale-bone for brushes; and he had been long in a cachectic state from mercury. The principal change in his lungs consisted in emphysema. There was some general serous effusion. The kidneys are stated to have been only a little too firm, and the abdomen generally congested.

CASE IV. (21st 11th mo. 1840).—John N., æt. 20, suffered some years ago with inflammation and thickening about the atlas, which subsided. The last five or six months of his life he had general dropsy, with symptoms of thoracic obstruction, and at times coagulable urine. He was tapped a few days before his death.

On inspection the face was sharp and livid; the body and legs tumid. The pericardium was adherent, and the lungs partially so; and the pleuræ presented recent fibrinous layers, with watery and puriform secretions. The lungs were emphysematous and turgid. The bronchial secretion was watery, and the smaller tubes were large, and very thick and red.

More than one-half of the lung substance was in a state of hepatization, uniformly airless, dark, red, and fleshy, but scarcely distended, and very little lacerable or watery. The trachea was narrow: the left bronchus decidedly flattened. The heart was about twice as large as is natural, and its substance dark and hard. The aorta was remarkably narrow. The left ventricle was capacious and thick. The mitral orifice was equally expanded, and the curtains wide and thick. The auricle dilated and strong. The pulmonary artery was wide and clear. The right ventricle seemed altered as the left, but in a less degree. The auricle strong and too capacious. The fossa ovalis appeared only wide and thin. There was much fluid in the abdomen, with albuminous flakes. There were various chronic alterations of the serous membrane. The liver was too membranous and pale, yet flabby and a little like nutmeg. The kidneys were a little dark, firm, and granular.

REMARKS.—The foregoing cases are placed by themselves, as a set of simpler examples than those which will be hereafter related in connection with imperfections of the septa of the heart. I by no means would have it supposed that I have brought forward all the instances that have occurred to me.

It is worthy of notice that the three first cases were fatal at the age of twenty-two, and the fourth at twenty*, and that it is about this period that congenital impediments are also commonly fatal, if not destructive in still earlier life.

In the first case, that of Hogg, there is evidence of something wrong in the complexion, without any communication of the two sides of the heart. The state of the right ventricle, of the pulmonary sigmoid valves and of the aorta, indicates that the affection was congenital. The obstruction seems first and most to have implicated the left cavities of the heart, and least of all the right auricle. An account of the kidneys, &c., might doubtless have assisted to explain the dropsy.

Sarah A. C. had also had rheumatism, and the alteration of the mitral valve was evidently old, but as an impediment it was by no means equal to what is often met with. The state of the left ventricle was peculiar, receiving less than formerly, and yet not so much diminished in cavity as in firmness. The very thick right ventricle I regard as almost necessarily congenital.

The third case, like the rest, was one of dilatation, but some thickening of the right ventricle is still to be noted, not as an actual hypertrophy, but as the remains of the congenital proportions.

The fourth case is perhaps the most genuine and unmixed instance, but the whole should be compared with another series. In these cases the affection of the lungs is sufficiently accounted for by reference to the obstruction in the left side of the heart, and the undue impulse from the right ventricle.

The preceding examples may serve to prove the occurrence of too small an aorta, and lead, as I expect, to the frequent observation of the fact, and also to point out some of the chief alterations to which the narrow aorta gives rise. It has not appeared to me available to seek for specific indications of the cases in question. A degree of obstruction, not very severe, with other symptoms of difficulty, which are essentially variable, in dependence on casual external influences, seems to me all the character that diagnosis may appreciate.

Palpitation I have long concluded to be the same thing as dilatation or temporary distension of either or both ventricles; but this will bring the observer very little nearer to discriminating a narrow aorta, which, however, I suppose to be always attended both by dilatation and palpitation in evident if not in severe degrees. I need not say that the heart is not at all times over full. How many things must disturb the regularity of events: — repletion, exertion, and especially climate, must necessarily produce far greater changes in the disturbed apparatus than on the healthy body; but even these last are rarely well reflected on. With respect to climate, I think I have noticed great differences in the progress of very many different kinds of disease, when comparing my own experience in England with the medical records of the south of Europe, and still more with examples before me in the West Indies. A little girl in Jamaica had had no sensible disorder in the chest, yet there was a constant sound to the ear, (and hand, if I may so speak), strong, sharp, and aneurismal, with wiry ventricular systole, which I attributed to a congenital contraction of the pulmonary sigmoid valves. Wasted by the heat, and performing all the superficial functions, at least, with great facility, such an obstruction might be without any notable ill effects to one who never caught cold.

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* The case of M. Bouillaud, in the previous remarks, died between 17 and 18.

COLOURLESS GLOBULES IN THE BUFFY COAT OF THE BLOOD.

[Continued from p. 479.]

By William Addison, Esq.

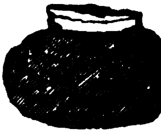
Case V.—M. W., a woman aged 68, troubled for twelve months with dry scurfy exfoliation of the cuticle of the head, and very irritable red patches of eruption on the thighs, and various other parts of the body. She has had recourse to all kinds of remedies, and been bled two or three times with only partial relief for short periods.

V. S. to ℥x.

In three minutes the surface of the blood appeared blue or purplish; this gradually changed to a full bright buff, which at length became clouded and opaque, entirely obscuring all the red particles.

Immediately on tying up the arm I removed a little of the purplish looking portion with the point of a penknife, and transferred a clear pellucid drop to a slip of glass; several colourless globules were seen floating in it by the lens. Portions were subsequently taken up, when the surface had assumed the full buff colour, and the globules were found much more numerous, as if their number had increased by standing. In ten minutes a delicate, thin, almost transparent pellicle, could be drawn up by the point of the knife, but the portions below were not coagulated in half an hour.

Case VI.—A. H., a man aged 42, ill several days with dry cough; not feverish; pulse quick and feeble: ten ounces of blood taken from the arm: the first portion in a small silver cup holding half an ounce, and the remainder in a common bleeding-basin. An hour after, the first exhibited over the whole surface a flocculent greenish-brown appearance, without any red portion, excepting a thin line round the circumference of the vessel, and a few red globules entangled in some air bubbles; the blood in the basin had a flocculent appearance, chiefly of a bright scarlet colour, with patches of greenish brown buff. After standing twenty-four hours the clot of the first, in the silver cup, presented a ragged buffy coat.



The figure of the clot is here represented, shewing the thickness of the buffy coat, and the bulging out of the lower red portion.

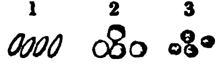
Specific gravity of the blood, 1060; of the serum, 1032.

The form of the clot shews the greater contractile force of the fibrinous portion forming the buffy coat, which is denser and much tougher than the red portion: the red particles apparently oppose the contractility of the clot; hence the bulging of this portion.

794 grains of blood gave 504 coagulum, and 290 serum—that is, 63·4 per cent. coagulum; 36·6 serum.

The blood circulating in the body consists of the liquor sanguinis (a clear limpid viscid fluid), and the red corpuscules. In health these two constituents of the blood, in a few minutes after their removal from the circulation, form a soft coagulum, from which the serum gradually separates, leaving the crassamentum or clot of a bright red on the surface, and of a deeper red at the bottom. In rheumatic, inflammatory, or diseased blood, the red corpuscules subside more quickly, leaving the liquor sanguinis swimming at the surface, which at the first moment of its appearing is clear and limpid, looking like oil; but as it is momentarily losing its vital properties, its transparency is impaired, and numerous colourless globules are developed. The red corpuscules below, seen through this now imperfectly transparent medium, have a purplish or bluish appearance. As the liquor sanguinis accumulates (still losing its vital properties), it grows more opaque; the colourless (or yellowish?) globules become more numerous; and the colour of the red corpuscules, still less perfectly shaded through it, assume a dirty yellowish red or brown. When, at length, from further rest, a still thicker layer of liquor sanguinis accumulates, it becomes quite opaque; the colour of the red portion below can no longer be seen at all, and the surface then assumes a full yellowish buff or green. The vital properties of the mass still diminishing, a film forms, and at length perfect coagulation takes place by the thickening of the film, and the firm aggregation of the globules; more or less serum is pressed out, and the buffy coat is complete.

On viewing the circulation of the blood through the capillary vessels in the web of a frog's foot, we observe that the very frequent inosculation of these vessels forms a complete network; the meshes or spaces between them being from four to six times their diameter, which is just sufficient for the red corpuscules of the blood to pass in single rows or files: the distance between the corpuscules being unequal, sometimes two, three, or even four, appear so close as to touch or crowd upon each other; frequently a string of them will pass through a capillary in this manner; more often there are spaces between the corpuscules equal to more than the diameter of any single corpuscule. The liquid (liquor sanguinis) in which they move cannot be seen under the microscope; it is perfectly clear and colourless. I have for half an hour attentively studied this circulation, and I have seen three distinct forms of globules: the first oval, or rice-shaped; the second ayer with a circular and rather irregular outline; the third with a smaller more regular circular outline, with little specks or spots.



No. 1 has a strong well-marked outline, and is the most frequent form. No. 3 has also a well-defined strong outline. No. 2 has a fainter one; and 1 and 2 may be frequently seen changing into each other. No. 3 is never seen assuming the figure of either 1 or 2: they are distinctly smaller, with specks on them.

The following notes were penned with a microscope before me:—

When a particle of salt is applied to the web of the frog's foot, the current of blood in the capillaries within its influence is retarded; the globules seem to have some difficulty in getting on; they are pushed and heaped together, and the vessels appear somewhat gorged. Where the action of the salt is more considerable, the vessels are more enlarged, and the globules are quite stationary. After a short time the globules in some of the smaller capillaries, where the salt has had only a feeble effect, begin to move more quickly, seeming to answer an impulse from behind, and a number of them may be seen to make a sudden rush through a capillary; then, for a moment or two, the vessels appear quite empty of globules, and then another lot rush through with great rapidity; next, without any apparent reason, they hold back, and are heaped together for a moment; again the channel of the vessel seems suddenly to admit them, and they hurry through it in the same manner.

On examining the web two days afterwards, one or two inflamed or enlarged red vessels were seen by the naked eye, produced by the action of the salt: the web was placed under the microscope, and the following notes penned at the time:—

In some of the larger capillaries, or smaller veins, *i. e.* in some of the larger vessels seen in the field, there are a great number of globules, No. 3; and it is quite extraordinary to observe the difference in movement between these round speckled globules and the oval ones; the blood globules pass in a continued stream, while, in the same fluid, in the same vessel, are a great multitude of other (lymph, No. 3) globules, which do not move, or do so very sluggishly: every now and then they move slowly, apparently urged on by the repeated knocks they receive from the blood globules. It would appear that after the capillary vessels have been acted on by the salt, that the round (lymph) globules accumulate in an unusual manner, and the blood globules repeatedly slide over and knock against them. In some of the vessels there is a rapid stream of blood in the centre, whilst at the circumference there are many stationary round spotted globules, which do not obey the impulse which urges the stream of blood, but remain or move on slowly by little starts at uncertain intervals, and with unequal pace.

The action of the salt disturbs the reciprocal action between the blood and the capillaries; under its influence the blood globules that have been passing one way in a capillary will sometimes become stationary; they are frequently seen to oscillate to and fro, apparently hesitating which way to go, and then they very often actually pass in a retrograde manner.

It is after the disturbance or inflammation produced by the salt that the three forms of globules are seen.

I infer from these observations that the blood corpuscules, in the normal condition of the circulation, move through the capillaries with a flat surface perpendicular to the axis of the vessel; hence when the circulation is seen in the microscope, the edge of each corpuscule will be turned towards the observer, and they will all appear oblong or oat-shaped: a few lymph globules may occasionally be seen interspersed among them. When inflammation is excited, various changes take place. After the lapse of a short time more lymph globules are developed, and the blood corpuscules, instead of circulating with their flat faces perpendicular to the axis of the vessel, and the edge more or less perfectly turned to the observer, turn round and pass edgeways through the vessel, so that frequently the circular form, No. 2, is seen.

As the blood corpuscule in all animals has a determinate form, and as they pass singly, one after another, in the minuter ramifications of the capillaries, it is probable that in a normal condition of the circulation they move along the vessel in a certain fixed mode. In the human subject the blood corpuscule is of a flat circular figure, like a penny-piece; and such a body in passing along a tube must do so either with the thin edge or with one of the flat faces in its axis: if in the former manner, only two points of the corpuscule will impinge on the coats of the capillary; if in the latter, it is evident that in an elastic channel, which embraces the corpuscule, the whole circumference of the vessel will be impinged on by each passing globule; the interior of the vessel will be, as it were, scraped clean, and kept clean by every passing corpuscule.

In the rheumatic case (No. 3) mentioned in my last communication*, I separated the lower red portions of the clot from the upper buffy coat by maceration in water, and by breaking down gently the friable coloured clot. I then obtained a rose coloured cake, smooth on the upper surface, but on the under surface, from which the red portions had been washed away, there were numerous flakes, flocculi, and tufts seen, as the cake lay in clean water. This surface also felt granulated and rough to the finger; it was very similar in the sensation conveyed by the touch, and in appearance, to the inner surface of the pericardium, and to the exterior of the heart, in some of those cases where the rheumatic inflammatory action attacking these organs has proved fatal with dropsical symptoms. The feel and appearance of the under surface of the buffy coat, after being cleansed of the red portions, reminded me of the following two cases which occurred in 1838.

Case VII.—J. P., aged 28, two years ago was attacked with acute rheumatism in a very severe form, which confined him to bed for several weeks; he was treated by bleeding, leeches, and colchicum, and had a protracted convalescence. A short time after, working rather harder than usual at his trade (a carpenter), he first found his breathing short, with some tendency to swelling at the ankles, and he applied at the Dispensary for relief from these symptoms. The usual treatment by purgatives, mercurial alteratives, and diuretics, removed them, and he was able to go on with light work. After some time, however, they again increased; the ankles were more swollen, the breath easily disturbed, and the abdomen had evidently some fluid in it. Two or three doses of elaterium, with two small bleedings, relieved him greatly; and after a little while he resumed his occupation. The amendment did not continue long; he became more troubled with the shortness of breath and anasarca, together with cough; the urine was scanty, and coagulated by heat. Elaterium and digitalis afforded him marked relief. At length, after protracted suffering, having been twice tapped, &c., he died.

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* Page 478.

Two days after the body was examined: the surface was of an intense yellow hue; the lips, thighs, and abdomen, were covered with petechial spots, which had been evident some time previous to death. Upon cutting through the cartilages of the ribs, a great quantity of bloody serum flowed out, which was found to be issuing from the pericardium, wounded by the point of the scalpel. Upon raising the sternum the pericardium was found entirely covering the lungs, both left and right, occupying the entire front of the chest; and quite a gallon of the bloody serum (estimating that which was lost) was found contained in it. The fluid was in fact of a deep chocolate colour, and the whole internal surface of the membrane was of the same dark colour, and studded all over with shreds and flocculi of lymph. The heart was enormously enlarged, and entirely and thickly covered with a similar shaggy coating. The parietes of the left ventricle were nearly an inch in thickness; the pericardium also was much thickened. The heart, with the adhering pericardium, after having been well washed and drained of blood and coagula, and dried with a cloth, weighed 2lb. 6oz. avoirdupois. The liver was much enlarged, and looked when cut into like porphyry. The spleen was firm, with a dense white external coating. The kidneys were quite healthy, and the bladder empty.

Case VIII.—W. D., a lad aged 17, had rheumatism three years ago, and has been subject to the disease occasionally ever since, particularly during the winter. Was attacked severely in the autumn of 1837, and remained ill more or less during the winter. When I first saw him, in February 1838, there was considerable difficulty of breathing, a quick pulse, and feverish symptoms; altogether sufficiently indicative of diseased heart. Various remedies were had recourse to, but the disease went on; the breath became more and more embarrassed, notwithstanding occasional periods of relief from the measures employed; the ankles began to swell, the face puffed, and he died on the 25th of March.

The left lung was hepatized; the liver enlarged, and mottled yellow. The heart exhibited an interesting specimen of rheumatic disease, very different from the former case, just related. The pericardium was firmly adherent to the heart throughout, so that it was difficult to separate them, requiring to be dissected off; and in doing so the knife cut through a dense cartilaginous connection, with points of almost bony hardness. After well washing and drying, the pericardium and heart together weighed 1¾ lb. avoirdupois.

There can be no doubt that in these, and similar cases, the flocculi and shreds of lymph are formed of the same material as the buffy crust of the blood.

Case IX. — M. G., a woman aged 74, ill four days with oppression of the breath, pain in the chest, cough, thirst, and loss of appetite; tongue furred; pulse 108, weak, small, and oppressed.

Venæsect. ad ℥viij.

Blood drawn into two cups; in four minutes the surface had assumed a dirty yellow clouded appearance. The liquor sanguinis, to which this appearance was owing, was full of globules, and the clouded opaque aspect which obscured the view of the red particles was attributable to their development. In six minutes the surface was still fluid, and I skimmed off something more than a fluid ounce, without any red particles, or so few of them as only sufficient to tinge the fluid of a pale pink colour.

On the succeeding day the patient was not seen. On the next following, or forty-two hours after the bleeding, I examined the cups, and no serum had separated in either of them: in two, the blood was a soft jelly, and the liquor sanguinis in the other was the same, but much firmer, and of a pale rose colour; so firm, indeed, that I inverted the cup on the table, and left it so for a minute or two, without a single drop of serum escaping, or without any separation of the coagulum from the cup. I could not do this with the blood in the other two cups; the surface of which, on turning the cups on one side, was so soft as to be thrown into a fold, and if the cup had been inverted it would have fallen out. The coagulated liquor sanguinis weighed 587 grains, and upon being freed from the sides of the cup and turned out, a drop or two of serum only escaped; it was then placed on a piece of muslin and gently pressed, when a quantity of clear straw-coloured serum flowed out, like water out of a sponge; and notwithstanding the firm pressure I used, it escaped without the slightest opacity or tinge of red whatever. Several times after pressing it firmly, and getting all the serum I could out, more would escape, after allowing the clot to rest for a few minutes, on pressing it again. This left a firm, elastic, tough, pink clot, or mass of fibrine, about 1-10th its original size, not at all broken down by the firm pressure, but retaining precisely the plano-convex form it originally assumed in the cup.

On examining by the lens some of the last drops of the serum which separated, I found in them a great many globules or granules of large size; these might have been loose particles of fibrine—if so, they had a definite globular figure, more numerous and larger. This mass or clot of fibrine weighed 109·5 grains: hence 587 grains being the original weight, 478·5 grains (or very nearly seven fluid drachms) of serum had been squeezed out. The serum (478·5 grains) was heated in a cup over the fire, previously mixed with a little water; coagulation did not readily take place. I therefore added to it a few drops of vinegar, which gave rise to a strong urinous odour, and the albumen immediately separated like curds. The fluid was then strained off, and the coagulum squeezed dry; it weighed 233·5 grains.

The fibrine and albumen were then dried by a gentle heat. The former became a tough horny solid, shrinking very much: when dry not being more than a fifth or sixth of the bulk it was after being squeezed dry, and not a twentieth of its original bulk, it now weighed 16 grains. The albumen, by drying, did not shrink in bulk more than one-half, and formed a brittle transparent resinous solid, weighing 33·5 grains. The fibrine, by drying, shrinks in a singular manner. Hence 587 grains of the buffy coat of the blood contained 109·5 grains of moist fibrine, or 16 grains of dry fibrine; and 233·5 grains of moist, or 33·5 grains of dry albumen.

In this case, then, 16 grains of fibrine were sufficient to solidify 587 grains of the liquor sanguinis, the serum being retained by or contained in the pores or interstices of the mass, and flowing out only under considerable pressure. On removing the pressure the mass retained its original shape, but did not, like a sponge, exhibit the least tendency to resume any portion of its original bulk; on the contrary, it had more the appearance and mechanical texture of soft caoutchouc.

Great Malvern,
Jan. 12, 1841.

DEATH FROM CARBONIC ACID.

To the Editor of the Medical Gazette.

Sir,

I send you the following case for insertion in your valuable journal, if you consider it of sufficient interest.

I am, sir,
Your obedient servant,
Charles Collambell.

Canterbury Place, Lambeth,
Jan. 20, 1841.

The subject of the following case was by trade a painter, ætat. 23. On the morning of the 6th of January, at half-past eleven A.M., he was employed at the Archbishop's palace to clean the windows in some small rooms on the basement story. These rooms are three in number, and are of the following dimensions:—Length, 8 feet 10 inches; height, 7 feet 6 inches; width, 11 feet 11 inches; the first or external having a door opening into a court-yard, and all communicating with each other by a central door, having each a window, but no fire-place.

A brazier of burning charcoal had been placed in the first room, for the purpose of drying it; but upon the deceased going to work he had shut the outer door, and removed the brazier from the first into the third room, leaving the other two communicating doors open. At half-past one P.M., he was found lying on the floor in the middle room, and apparently dead. My attendance was immediately requested, and on my arrival I found the deceased on a table supported by some of his fellow-workmen, and quite dead. The countenance pale, eyes very bright and staring, pupils widely dilated, lips exsanguine, jaw firmly fixed, tongue not protruding, face and extremities cold. When first discovered a very considerable quantity of frothy mucus had escaped from the mouth: no other person had been in the same apartment, and from the deceased having been up all the preceding night, it was supposed that, feeling fatigued, he had laid down to sleep, which was confirmed by his not having commenced his work. He had been in the room two hours when discovered, and the ashes in the brazier were in a very low state of combustion. The person who first entered the room felt considerable oppression in breathing, from the state of the atmosphere. The deceased was perfectly sober when last seen alive.

An inquest was held on the 11th instant, and a verdict of "Accidental Death" returned.

After the inquiry I obtained permission to examine the body, but was obliged to do it very hastily, as the friends were waiting to remove it into the country.

No appearance of decomposition; slight discoloration of depending parts from gravitation: in other situations the body was unusually pale.

Head.—On cutting through the scalp a small quantity of dark fluid blood escaped. Vessels on the surface of the brain highly distended with dark fluid blood. Pia mater bedewed with serum. Brain of unusually firm consistence; and upon slicing it numerous bloody points issued from its medullary structure, upon wiping the surface of which the blood immediately reappeared from the divided vessels. Lateral ventricles distended with about an ounce and a half of pale serum; vessels of plexus choroides much congested. Cerebellum of a very firm consistence, and upon being cut into also presented numerous bloody points. About two ounces of serum, tinged with blood, collected at the base of the skull, much of which had flowed from the theca spinalis.

Muscles rigid; some fat under integuments of chest and abdomen; pectoral and abdominal muscles finely developed, and of a very bright red colour.

Chest.—Both lungs entirely filled their respective spaces, and did not collapse upon raising the sternum; their anterior aspect of a dark slate colour; the posterior of a very deep livid colour; universal crepitation upon pressure; eight ounces of serum tinged with blood on the left side of the chest, and about six ounces of similar fluid on the right. Upon cutting into the lungs an amazing quantity of serous fluid, mixed with blood, escaped; and although this appearance was most decided at the posterior and inferior parts, it was very apparent at the superior and anterior portions of each lung. Bronchial tubes filled with frothy fluid tinged with blood.

The pericardium contained about an ounce of pale serum.

Heart much enlarged; very considerable hypertrophy of left ventricle, with dilatation of left auricle and ventricle. All the cavities free from blood; but upon pressing on the course of the aorta some very dark fluid blood returned into the left ventricle. Valves healthy. Four or five pounds of dark fluid blood were removed from the chest, which had escaped from the divided vessels.

Abdomen.—Liver very large, and much congested with dark fluid blood. Kidneys also very large, and similarly congested. Mesenteric vessels distended with dark fluid blood, and the minute branches supplying the small intestines highly injected, diffusing over them a general blush of redness.

The congested state of the lungs and brain might partly have arisen from the dilatation and hypertrophy of the heart; but I think the general post-mortem appearances leave little doubt that the inhalation of carbonic acid gas was the immediate cause of death.

ON THE
MEANS OF IMPROVING THE FINANCES AND EXTENDING THE PROTECTION
OF THE
COLLEGE OF PHYSICIANS.

To the Editor of the Medical Gazette.

SIR,

THE *Quarterly* says, the College of Physicians is "poor even to bankruptcy[*]." Arrangements are said to be going on for the self-reform of an institution capable of being rendered the most powerful instrument for upholding the dignity and honour of our noble profession. Whatever may be the nature of the changes contemplated, the following hints may not be thrown away upon that portion of your readers connected with the College council.

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[*] We suspect it was a much less authority than the *Quarterly*, viz. the MEDICAL GAZETTE, which used this expression.—ED. GAZ.

Let the College obtain the power of rendering its license necessary for every man in England who practises as a physician.

There are 118 physicians to the provincial hospitals and dispensaries; 25, only, of these gentlemen are licentiates of the London College, (Farr's Medical Almanack). Among the manyhundreds of provincial physicians, but very few are on the College list; indeed, scarcely any but those who are looking forward to the metropolis. Many lecturers in the recognised medical schools, and many contributors to the Cyclopædia of Practical Medicine, are without the license.

The reason of the indifference to the possession of the license in the provinces is the contagious example of celebrity and prosperity enjoyed by the Pritchards, Hastings', Barons, Barlows, Headlams, Bardsleys, &c. &c. These eminent practitioners are the medical attendants of our nobility during the parliamentary recess, and their well-earned reputations render them *nullis secundi.*

English law is rarely or never retrospective; but should the College exercise a just lenity towards the regular graduates of Edinburgh, and other universities, who have been some years settled in actual practice,—in the same spirit as they grant degrees to practitioners beyond forty years of age,—and limiting the examination (unpreceded by regular grinding) to one or two days, instead of requiring three or four journies to town during a period of as many months, there can be no doubt that the greater portion of the physicians, established in country practice, would feel it an honour to be enrolled as members of the College under its new constitution.

Similar regulations might be enforced in Scotland and Ireland, and an *ad eundem* license from their respective Colleges secured throughout the united kingdom.

The College, however, might even extend its power of national and professional utility. The legal compulsion to receive its license would raise the moral and intellectual standard of the profession, and place it on a footing with the admirable organization of the Prussian Faculty, which allows no M.D. to practise on the strength of his diploma *per se*, but enjoins the ordeal of another examination as a qualification for practice.

The object of the intelligent Perceval, moreover, might be carried out by the stamp of legal authority vested in the College. The College might establish a court or courts of arbitration or appeal (as in France and Germany), for settling the various disputes which occur every day in the absence of an established code of medical ethics. The old laws of the College endeavoured to regulate such matters in the metropolis, and why should not protection be extended to the provinces? Under collegiate arbitration the various relations of physicians with each other in consultation, and the relative position and duties of physicians in connection with general practitioners, would be imperatively fixed, and the disputes from personal jealousy, owing to the peculiar nature of the profession, and which in law and divinity are comparatively unknown, would cease to be the opprobrium of medical society in every large town and city throughout the empire.

Your obedient servant,
A Provincial Physician.

Jan. 23, 1841.

ANALYSES AND NOTICES OF BOOKS.

"L'Auteur se tue à alonger ce que le lecteur se tue à abréger."—D'Alembert.

Elements of Electro-Metallurgy, or the Art of working in Metals by the Galvanic Fluid. Illustrated with Woodcuts. By Alfred Smee, Surgeon. London: E. Palmer, and Longman, Orme, & Co. 1841.

Medical men in active practice cannot reasonably be expected to keep up a very familiar acquaintance with new discoveries in natural philosophy. Yet if there is one branch which deserves a little more than ordinary study, it is electricity. Its energetic effects upon our nerves and muscles; its connection with chemical combinations and decompositions; its power of accelerating the flow of fluids through capillary tubes; its mysterious connection with the cause of heat; the existence of a palpable electrical force in certain animals; the influence of peculiar states of atmospheric electricity upon our feelings, not to mention its asserted power of supplying the place of the nervous energy: these, and a multitude of other facts, seem to shew that much aid might reasonably be expected from it in controlling the operations of the animal economy. And although its success hitherto has not been commensurate with these expectations, may not its apparent failure be fairly attributed to our imperfect acquaintance with the laws of its operations, and to a hasty and violent mode of using it, rather than to its intrinsic inefficacy? Ought it to be entirely neglected because a few shocks or sparks will not cure an inveterately palsied limb, or amaurotic eye: for it cannot be denied that its most frequent use is as a last and desperate remedy for cases that admit of no cure from it or anything else.

Now however, when, as Mr. Smee says, "a person may enter a room by a door having finger plates of the most costly device made by the agency of the galvanic fluid—when the walls of the room may be covered with engravings, printed from plates originally etched by galvanism, and multiplied by the same fluid—the chimney-piece may be covered with ornaments made in a similar manner—at dinner the plates may have devices given by electrotype engravings, and the spoons gilt by the galvanic fluid,"—we may reasonably hope that medicine will not be behind the other arts in enlarging the application of electricity to the increase of human health and comfort. For now it seems that galvanic batteries are no longer to be confined to smoky laboratories, or to be stared at in fruitless wonder from the benches of a lecture-room; but will be the prime movers of manufactories and the indispensable appendages of ladies' boudoirs; etchings may be made on plates of pure galvanic copper, and these may be *bitten in* by galvanism, without the suffocating nuisance of nitrous fumes. Pictures, coins, statues, woodcuts, and daguerréotypes, will all be multiplied with ease; antiquities need never perish, and novelties need never be scarce.

Mr. Smee's book is not a mere compilation from other men's labours, but it consists principally of the results of his own experiments, by which he has fully developed the laws of metallic precipitation. To the manufacturer and the artist it must be invaluable, from the multiplicity of information it conveys on the subjects of gilding, plating, making coins and medals, copying seals and plaster casts, sculpture, printing, and engraving. The botanist may learn from it how to make an imperishable *hortus siccus.*

"A pretty application of the art of coppering," says our author, "is suitable to horticulturists, as, by its means, fruit, vegetables, leaves, seeds, and various other specimens, may be coated with copper, either for ornament, or for the purpose of illustrating the size, form, and other peculiarities of the object. Apples and pears may be very readily coppered. They are to be brushed over with black lead, and then a small pin is to be thrust in at the stalk; to this a wire should be attached, which is connected with the zinc of the battery. It may then be placed in the solution, and the whole arrangement completed by a piece of copper, which is to be connected to the silver of the battery. In a similar manner cucumbers, gourds, potatoes, carrots, and a hundred other vegetables, seeds, and roots, may be covered. The form after the process is so characteristic, as to mark strongly the individual characters of each. The condition in which the copper is thrown down can of course be varied according to the laws set forth in the last chapter. For ornamental purposes the crystalline copper is the most beautiful; but for a specimen intended to illustrate the form of the object the smooth copper is best adapted. After the objects are completely covered the pin is to be withdrawn, which will leave a little hole, and that enables the evaporating juices of the vegetable to pass freely out, and thus promotes the complete drying of the encased object. A cucumber which I coated during the past summer appears now to contain scarcely any thing inside the copper; and the pears, apples, &c. consist of little but the metallic coat. The botanist will readily perceive in what way this process may be used to his advantage."—P. 97.

Mr. Smee tells us, moreover, that he has not neglected his medical brethren:—

"The dentist requires, for artificial teeth, an exact cast of the mouth in gold, platina, or palladium. Now the cost of the manufacture of this is so expensive, that many are prevented from availing themselves of these valuable appendages. It is absolutely necessary that the gold should fit very accurately, or else the wearer is not able to use them. Electro-metallurgy might be brought to aid the mechanic."

"Even to the surgeon electro-metallurgy seems likely, in many cases, to be very valuable; for when he is desirous of exerting constant pressure on any part, or of confining any part in a particular position, he can make a copper instrument exactly to suit any individual case that may occur, by first taking a cast in plaster of Paris, or, which will be more simple, by a piece of gummed sheeting."—P. 116.

We may conclude, by recommending Mr. Smee's book to all who wish for a compendious *resumé* of the science of galvanism in general, as well as an account of his most interesting application of it to the arts. But, to be candid, we must object to two faults which it possesses: one is, that it is far too short; the other, that it is exorbitantly dear. Half-a-guinea is rather too much for not quite 150 octavo pages! But we can scarcely attribute this fault to the author. In fact, the mystery is explained, when we find that the book is published by a chemist, who has filled more than a third of it with gilt-edged advertisements for which he obtains, no doubt, a good share of the half-guinea.

MEDICAL GAZETTE.

Friday, January 29, 1841.

> "Licet omnibus, licet etiam mihi, dignitatem *Artis Medicæ* tueri; potestas modo veniendi in publicum sit, dicendi periculum non recuso."
> CICERO.

MEDICAL REFORM.—THE APPRENTICESHIP SYSTEM.

THAT there will very soon be legislation in medical matters cannot now be doubted. The article in the *Quarterly* will already have attracted to them more attention than all the annual outpourings of the few public legislators who have hitherto monopolized the subject, and who shining only where they are not rivalled, have hitherto spoken to deaf ears or empty benches. We have often lamented the lukewarmness or total neglect with which the affairs of one of the most important of professions have hitherto been treated; but we have reason to believe that this will be the case no longer; and this change has come, not from the increased urgency of the case, not from any new light cast upon the difficulties of the question, either by this journal or its rival, but, strange condition of society! because a popular and influential periodical, devoted to general literature and politics, has admitted the subject into its pages, and has presented it to the minds of hundreds who, so long as it was urged on them only by those who were immediately interested in it, would have turned from it with carelessness or disdain.

Seeing, therefore, that changes must come, it is manifestly the best course for those who have reflected on the subject to offer at once such suggestions as may best be suited to render those changes beneficial. With this view we shall take occasion to notice in succession certain of the points which seem most to need amendment, and especially those which, in the bustle of approaching change, are likely to escape the attention of the more active and less reflecting. Of these one of the most important is the question of apprenticeships; that is, whether the great majority of those who enter the profession should be compelled to undergo an apprenticeship before they commence their attendance on lectures and hospital practice. We have often expressed our opinion in the negative; and the excellent writer in the *Quarterly* coincides with us, and, we believe, with the large majority of those who have thought impartially on the subject. However, we are far from hoping that the system of apprenticeships will be utterly abolished; and it is for the fear lest, in the speed and often thoughtless process of law-making in these days, the total abolition of them should take place, that we now offer some remarks on them.

It must never be forgotten that the laws for medical practitioners are not to be applied to a homogeneous multitude. They must be adapted as widely as any laws that should have for their object the direction of the practice of the whole body of lawyers, from Parliamentary pleaders to Insolvent Debtors' Court attorneys, with all the intermediate grades included. In neither profession can these differences be obliterated; if styles and titles were equalized in both to-morrow, there would be the same differences of practices and remunerations the next day; unless, indeed, all distinctions of rich and poor were destroyed at the same time, in which case a somewhat longer period might be necessary to bring things back to a state like the present. But back they would come: differences of professional remuneration (in themselves sufficient to lead to corresponding differences of professional rank) have risen from the gradual progress of society; and if they are ever obliterated, it will only be in that happy time when all will be perfection.

We repeat, therefore, the future medical laws must be adapted for a society composed of many kinds of members; and, as far as the system of apprenticeships is concerned, it is as plain that it, or something equivalent to it, must exist, as it is that it has hitherto done great mischief by being made almost universally compulsory. What are the chief evils of the system of apprenticeships? Let us answer this deliberately.

First, it prevents many of the best educated of our profession from earning their living in the way which circumstances may render most convenient—viz. as general practitioners. Those of the students intended for physicians or pure surgeons, whose health forbids their residing in large towns—those whose talent or self-confidence falls just short of that necessary for metropolitan success—those whose chief connections reside in the provinces—those whose means fall short of what are necessary to bear up against the absence of practice in their first years' residence in the great cities,—all these, and many more, are subjected to great inconvenience, because they cannot betake themselves to the sure profits of provincial general practice, in consequence of not having been apprenticed to apothecaries. Nor are they the only parties injured: the public also suffer severely; for these are of the class who would, by their superior knowledge, and their high attainments, both in medicine and general learning, tend most of all to exalt the character of provincial practitioners, and to level that difference, which, on the whole, now exists between those of large cities and those of smaller towns. So severely is this inconvenience felt, that we know it is a common thing for one intending to practise as a physician or a surgeon only, quietly to apprentice himself to an apothecary, of whom he perhaps afterwards sees nothing, in order that, in case of need, he may not be prevented from obtaining at any time the license of the Apothecaries' Company. And the Company in their turn wink at this, satisfied, as many of their leaders confess themselves to be, of the mischief of a compulsory system of apprenticeship. Now, to avoid all this—to enable any one who can obtain the license, after a competent examination, to practise as an apothecary—to give the best educated members of the profession an opportunity of carrying on a profitable practice in the country—to remove the deceit and folly of mock indentures, let the serving of an apprenticeship cease to be compulsory.

The second great evil of apprenticeships is, that it compels students to enter the profession at too early an age. With the majority, three or four years must be spent in dispensing in the surgery; then come the three years more of attendance in hospitals; and thus, on an average, the whole time of medical study occupies not less than seven years. Now, with most fathers, it is an object that their sons should begin to earn their own bread by the time they are 22; and for this purpose they must be taken too early from the acquirement of general knowledge, and from the studies by which their mind is disciplined, and ought to attain the vigour so necessary for the study of a more difficult science. They must be taken from these at the callow age of fifteen, and put into a profession for the right study of which they are commonly by no means competent. For a well-disciplined mind, seven years' study is more than enough to make its possessor fit to commence the practice of his profession; four years would be sufficient if the best opportunities were taken; five would be ample. How much better, then, would it be for young men to commence their hospital studies with the vigour of mind that may be acquired in a long-continued education—to begin them when they have some knowledge how to distinguish facts from fallacies: in short, when they have learned how to observe and to reflect for themselves.

To avoid this evil, which affects even a more numerous class than the preceding, and is therefore still more injurious than it to the public interest—to avoid the bringing of pupils into the profession before they have learned to learn, and to insure that, among the majority of practitioners, the standard of general knowledge should be the highest possible under the circumstances, we say again, let the apprenticeship be no longer compulsory on those who would become apothecaries or general practitioners.

We might add others to these, the most palpable evils of the system; but let these suffice: they prove that it often presents an obstacle to the entrance of gentlemen into a branch of the profession, on which their association would confer honour, and in which their practice would be advantageous both to themselves and to the public. But is the system so bad that it is invariably productive of harm? Far from it; it is in many cases necessary, and in some beneficial.

The system of apprenticeships is necessary for the supply of assistants to those who are in extensive practice. It is impossible for such an apothecary to dispense his own medicines, or, in some cases, even to see all his own patients. What, then, can be better than that he should have his pupils, his apprentices, to perform these minor offices for him? It may be said that he must keep paid assistants; we can only answer, ask an assistant whether he finds his occupation so agreeable that he would wish the number of his class increased. The system that would make the employment of assistants compulsory (and this would of necessity be the early effect of the abolition of apprenticeships) would be worse and more full of hardship than the present.

And again, the serving of apprenticeships is beneficial in many cases in which, but for them, he who should be a student would be receiving no education at all, or one of an inferior kind. It cannot be doubted that unless, from the age of fifteen to that of seventeen or eighteen, a lad is sent to a good school, where he may gain sound knowledge and have his mind healthily strengthened, he had better be learning those parts of his future profession which he can acquire in his master's surgery. Now there are hundreds in this case, whose fathers are not rich enough or wise enough to send them to a first-rate school, or who are themselves anxious (sometimes for good reasons) to be early commencing the real work of their lives—to whom an apprenticeship presents the best possible advantages: for let it not be thought that apprentices learn nothing. It may be true that they do not acquire such an amount of knowledge as the occupation of three or four years ought to have brought them; but still we know many very excellent practitioners who will confess that they learnt much more of real practical medicine and surgery in their apprenticeships than ever they did amid the bustle and hurry of lectures and dissections, and the unprofitable excitement of rare cases and great operations. And many are the young physicians and surgeons who would give half (their *fees*, we were going to say, but we will call them rather) their hopes of practice, to possess the familiarity with the private sick-room, and the facility of planning and executing *little* things, which the apprentice never fails to acquire. He learns, in a word, much of the every-day work of the private practitioner: the hospital student too often learns only the wonders and rarities of the art.

While, therefore, there are these benefits connected with the apprenticeship system, it would be absurd and injurious to put utterly an end to it—to make the time occupied in the service of it count as nothing. If a student does not enter the profession till he is eighteen, let four years' study suffice for him, and let all this time be occupied in the pursuit of medical knowledge, under the best possible circumstances—a well-directed attendance on lectures and hospital practice, dissecting, dressing, clinical study, and so on. But if he prefers commencing earlier, then let a number of years, spent as an apprentice, count at a somewhat lower rate: let each year be deemed equivalent to a certain portion of attendance on lectures and hospital practice,. and let a shorter time of actual attendance on these be deemed sufficient. To do otherwise, will be to shut out of the profession a considerable number of its most useful members, for the performance of whose services the public will resort to druggists, and the rest of the tribe who already feed on the abundant sources of profit that members of the profession are apt to treat with contempt.

DEATH OF MR. HOWSHIP.

We regret to announce the death of Mr. Howship, which took place on the 22d inst., in consequence of disease of the tibia, followed by abscess. The deceased enjoyed rather an extensive practice, and was one of the Council of the College of Surgeons.

By the way, we rather think Mr. Wakley comes next in the list. Let our readers just fancy the honourable M.P. for Finsbury walking in, and taking his seat, as their new colleague, among the present members of the Council of the Royal College of Surgeons!

We presume that Mr. Arnott will be the new member.

CASES OF POPLITEAL ANEURISM.

Case I.—Henry Williams, aged thirty-six, a weaver, was admitted on the 20th of May, 1830, on the recommendation of Mr. Cunningham, of Kirkcaldy, to have the femoral artery tied for popliteal aneurism. The tumor occupied the hollow of the ham—it was circumscribed in form—and, from the distinctness of its pulsation, seemed to contain little coagulum. The patient's attention had been first directed to the complaint about two months before, by an uneasy feeling of stiffness in the part, after a particularly severe day's work.

He was confined to bed, and ordered a laxative to prepare him for the operation. Next day, the pulsation had become extremely obscure, and though it slightly returned the following day, at the end of two days more it could not be perceived at all. The articular arteries were then felt much enlarged, and the tumor quickly diminished in size, while it increased in firmness, until merely a small knot the size of an olive remained. He was dismissed at his own desire on the 31st of May.

CASE II.—William Sinclair, aged twenty-six, was admitted on the 20th of November, 1839, on account of a pulsating tumor in the popliteal space of his left leg. It was about the size of an egg, and distinctly circumscribed. The patient stated he had first remarked the swelling and beating in the month of August, while serving as carpenter on board a whale-ship in the North Seas.

The femoral artery was tied on the 3d of December. The ligature separated on the 28th, and the patient was dismissed quite well on the 9th of January.

CASE III.—John Lockie, aged twenty-nine, a shopkeeper in Edinburgh, was admitted on the 17th of April, 1840, on account of a large pulsating tumor occupying the ham and calf of the right leg. There was considerable œdematous swelling of the limb from the knee downwards, and over the shin-bone there were some dark-coloured spots, which had been produced by the pressure of a carefully applied flannel bandage, thus denoting a great degree of weakness in the part. The patient stated, that, about a month before admission, while walking down to Leith, he had strained the knee, and, in consequence, almost immediately afterwards perceived a beating tumor in the ham.

The artery was tied on the 30th of April, and though no unpleasant symptom followed, the swelling was slow in undergoing absorption; so that when he was dismissed, on the 3d of June, there still remained some enlargement of the limb. He nevertheless was able to resume his employment, and perform a full share of active duty; but about a fortnight ago observed a swelling in the calf of the leg, which has since opened spontaneously, and discharged a large quantity of matter, mixed with coagulated blood, —no doubt the remains of the extensive effusion which existed previously to the ligature of the vessel.

The first of these cases is curious, from the spontaneous cure occurring while the aneurism was still small and circumscribed, and the circumstances consequently unfavourable for coagulation. The second case was very similar to it, and I delayed the operation for a fortnight, to afford the chance of recovery without its performance, which might be derived from perfect rest and the pressure of a bandage. The third case seemed rather unfavourable, from the large size and sudden extension of the swelling: and the recovery was accordingly much slower than usual, though ultimately effected. It has been a question, whether an early or advanced stage of the disease is more favourable for success,—the undilated state of the anastomosing vessels being considered adverse in the former, and the quantity of extravasated blood an obstacle in the latter. From all that has fallen within my own observation, I should have no hesitation in preferring to operate at an early period, having never witnessed in my own practice the slightest unpleasant symptom of defective circulation, however small and recent the tumor might be.

Of all the operations performed for aneurism, ligature of the femoral artery is, I believe, justly regarded the easiest, either on the dead subject or on the living body, and yet the bad consequences which attend it are distinguished by their severity as well as frequency. For my own part I have been fortunate, having tied the vessel seven times for aneurism with success. But within the period of doing so, I am not aware of any case that has terminated favourably in this city, while I have either seen or heard of four that ended badly, viz. one by inflammation of the vein, one by mortification, one by hemorrhage, and one by amputation. It is usual to attribute untoward occurrences to some peculiarity in the constitution of the part or patient; and there can be little doubt that varieties of this kind may have some influence over the result. But I feel quite sure that attention to some minute points in performing the operation has a much larger share in determining whether it shall be favourable or unfavourable.

It is established that the great sources of danger from the ligature of large arteries, are, undue laceration and separation of the connections of the vessel, whence hemorrhage is apt to ensue; and injury to the coats of the veins, which is apt to occasion inflammation, and an obstructing coagulation, causing mortification of the limb. The subclavian artery, when tied at the external edge of the *scalenus*, lies at some distance from the vein, and neither the carotid nor the external iliac artery adheres so intimately to its accompanying venous trunk as to render it at all difficult or dangerous to pass the needle. But the femoral artery has a closer connection with the vein, and though it is felt by the operator's finger, after the fascia has been opened, round and distinct, and as if insulated from the surrounding parts, except by the loosest connections, any attempt to pass the ligature, without further dissection, either proves abortive, or if executed by force, exposes the patient to the greatest danger. I have seen a gush of dark-coloured blood proclaim transfixion of the vein; I have seen on dissection a portion of this vessel included in the ligature; and I have also seen the external coat alone grazed, as it were, by the needle, but nevertheless excited to fatal inflammation. If, on the other hand, this danger be avoided by using blunt instruments, or the finger, to detach the artery from its connections, the patient is exposed to the hardly less disastrous consequence of hemorrhage, through ulceration or sloughing of the vessel.

To tie the femoral artery safely, the surgeon should be impressed with the conviction that the operation is one not of difficulty, but of great nicety. He should make an incision between two and a half and three inches long in the proper situation, cut through the fascia to a smaller extent, and expose the sheath of the vessels. So far he can hardly go wrong; but then, instead of hastening to pass his needle, he should, by ligature, or the temporary application of spring forceps, close every little vessel that discharges enough of blood to obscure distinct vision of the object he has in view. Let him now seize the sheath with dissecting forceps, and gently raising it, make a small opening by means of a straight narrow sharp-pointed knife. The cellular and fatty substances which envelop the vessels in variable quantity are next to be elevated and divided in successive portions, until the external coat of the artery appears quite distinct and *white*, when the needle may be passed without the slightest difficulty or danger. I am quite aware that instructions to the same effect are contained in the common books of surgery; but believing, for the reasons above stated, that sufficient attention in practice is not bestowed on the point concerned, I think it right thus seriously, and diffusely as it may seem, to repeat and enforce these directions. —*Prof. Syme, in the Edin. Monthly Journal of Med. Science.*

EFFECTS OF OVER-EATING.

By Dr. Ritter.

A girl, three years old, went with her father to gather plums; as they fell from the trees she kept eating an enormous quantity of them, and then, feeling very thirsty, drank cold water from a spring close by. Soon after returning home, having seemed previously quite well, she suddenly fell down as if struck dead by lightning; her eyes were convulsively pulled about, and she lay quite senseless. The author being immediately sent for, found her with her eyes staring wildly, unconscious, insensible, and speechless; her pulse was suppressed, scarcely perceptible, and small: her respiration short and quick, frequently interrupted by sighing, and her face pale. The precordial region was distended and very tense. An emetic, containing one eighth of a drachm of vinum antimonii, and one eighth of a grain of tartar emetic, was immediately given, and was repeated every five minutes: but after several doses, produced no effect. Three powders were then given at intervals of ten minutes, each of which contained a grain of tartar emetic, and six grains of ipecacuan; but these excited only retching. Vomiting was at last brought on by tickling the pharynx with a feather. The materials discharged consisted of a huge mass of tough half-digested plums, with some frothy fluid. The severest convulsions now ensued, especially on the right side of the body. The eyes rolled irregularly and convulsively in their orbits; the mouth was drawn over to the right side, and watery froth kept running from it; the right arm and foot were set into a constant swinging motion; the face was earthy, the glance oblique, and the nose pointed; in short, there were all the appearances of closely impending death. Some strong coffee and wine and water were given, but the convulsions still continued. A mixture of equal parts of castor oil and almond oil was next prescribed, and a spoonful of it was given every ten minutes; clysters, containing oil, vinegar, and salt, were also administered. Soon after the second of these, borborygmi commenced, and were presently followed by the discharge of an enormous mass of half-digested plums, which was again repeated for several times. The child not long after came to herself again, and though weak was still free from danger. She slept well during the night, and next morning, with the exception of dulness and repeated diarrhoea, was well and in good spirits. —*Medicinische Zeitung*, and *Brit. and For. Med. Rev.*

THE EPIDEMIC AT ATHENS IN THE SUMMER OF 1835.

By Dr. Rothlauf.

For the following account of this little work, printed at the Royal Press at Athens in 1836, we are indebted to our Hamburgh contemporary, the *Zeitschrift für die gesammte Medicin*:—

Soon after the appearance of this book the author went to a better world. A granite column was erected to his memory at Poros, with the following inscription—" His friends and fellow-citizens to Rothlauf, the Bavarian physician, who died at Poros, a victim to his philanthropy during the plague in 1837."

At the end of June, when the sea-breezes ceased, the inflammatory character of diseases changed to a bilio-nervous one; wounds became erysipelatous; dysenteries and bilious fevers became nervous. On the 25th of June, and the following days, several persons died, in spite of all remedies, with an inexplicable extinction of the vital powers. The spinal marrow and the abdominal nerves seemed to suffer, and to be the cause of an abdominal typhus. The phenomena of the three stages of the disease were those of *typhus gravis;* but it was often complicated—1st, with intermittent fever, which made the diagnosis difficult; 2d, with real inflammations. In August the intermittent type predominated, and at a later period the epidemic concluded with intermittents. Dr. Rothlauf rejects the opinions that this epidemic was merely an intense ague, or that it originated in inflammation, or in bilio-nervous fever. We should be glad, says the German reviewer, if he were right; and if inflammation, typhus, and ague, did not occur together in marsh fevers or typhus fevers.

Terminations.—Twenty-five in a hundred died, many of them from mistakes in diet during convalescence, particularly when there was ague with some complication. As in all nervous fevers, crises were rare, and resolution ordinarily took place. In the third stage, when the patient was already looking like a corpse, his life was sometimes saved by sweats, stools, and swellings of the parotid glands, which it was always necessary to bring to speedy suppuration. The common sequelæ were weakness of the chest, *hydrops pericardii*, *phthisis intestinorum*, amaurosis, and purulent otorrhœa. After the fever all the cavities were inclined to dropsy. Death generally proceeded from below upwards, and consciousness was free to the last, except when a rapid paralysis of the abdominal nerves was produced by acute hydrorachitis, and caused apoplexy. Some died asphyxiated, from spasm of the chest, in the first or second stage of the fever.

Dissection.—Besides the characteristics of putridity, which were very complicated, the nervous sheaths were of an almost inflammatory redness, the nerves softened, the ganglia œdematous, the membranes of the spinal marrow dropsical, and the periosteum showed injected spots. Probably the marrow had suffered also.

The author does not consider infection the obvious cause. Peculiar states of the weather had destroyed the vegetative life of the nerves; reaction was prostrate, and there were mere commencements of inflammation, congestions which soon ended in dropsies. The epidemic consisted of an abdominal, ganglio-spinal typhus.

Of 412 deaths, 401 were foreigners, and only 11 Greeks. Men were the chief sufferers—the poor, and the troops encamped in the olive-wood, close to marshes: in the town the part which suffered was the one opposite this wood. As the town did not suffer till fourteen or eighteen days later, when the epidemic was mingled with intermittents, the picture of the disease in the town becomes obscure. The etiology of the fever, as given by the author, reaches from the stars to the graves of the dead, and is a sensible enumeration of the exciting causes of epidemics. His treatment is rich in remedies, but poor in efficacious ones. In conclusion, the author is of opinion, that by draining the marsh in the olive wood, by building wholesome houses on the ruins (so that pernicious excavations might be checked, as well as the unhealthiness of the town), by restoring aqueducts, and supervising the state of provisions by laying out plantations, and rooting out poisonous plants, and by founding better hospitals, &c., a similar epidemic need not again be dreaded.

BIRMINGHAM SCHOOL OF MEDICINE.

To the Editor of the Medical Gazette.

SIR,

WILL you oblige the Royal School of Medicine by the insertion of the following paragraph.—I am, sir,

Your obedient servant,
WILLIAM SANDS COX.

BIRMINGHAM ROYAL SCHOOL OF MEDICINE AND SURGERY AND QUEEN'S HOSPITAL.—The very generous and philanthropic divine, the Rev. Dr. Warneford, has presented, through the medium of Mr. Sands Cox, the sum of one thousand pounds, in addition to his two former donations of one thousand pounds each, to enable the Council of the Royal School of Medicine and Queen's Hospital to carry out the object he has so much at heart, viz. "to combine religious with scientific studies and pursuits, and to make medical and surgical students good Christians as well as able practitioners in medicine and surgery." The Royal School of Medicine has also to acknowledge from the same generous patron, in addition to the valuable works presented by him to their library on subjects connected with natural and revealed religion, and selected by the Reverend Vaughan Thomas, a sum to be devoted to the execution of a die for two gold medals, as the annual prizes instituted by him for the two best essays "on a subject be taken out of any branch of Anatomical, hysiological, or Pathological Science, to be eated of in a practical and professional anner, but always and especially with a ew to exemplify or set forth, by instance example, the wisdom, power, and good- ess, of God, as revealed and declared in oly Writ."

NAVAL ASSISTANT SURGEONS.

(From a Correspondent.)

HE Naval and Military Commission has mitted to make, among others, the following nprovements in the condition of naval ssistant surgeons.

The Assistant Surgeon has not a cabin; ut has to sleep and dress among a number f others, instead of having a private room, one of his station and age ought to have.

For the purpose of study there is no place ccept the mess-room, which is always full f noise from the boys with whom he is ompelled to mess, instead of messing with e lieutenants and surgeon as he ought to do.

Captains and lieutenants are styled "com- issioned" officers, while assistant surgeons e degradingly denominated "warrant" fficers.

These, and other grievances, lessen the re- ectability of the whole medical profession, d are felt to be unjust, insulting, and grading, by the four or five hundred mem- ers of the College of Surgeons who are in e situation of

A Naval Assistant Surgeon.

December 1840.

COPLAND'S DICTIONARY.

To the Editor of the Medical Gazette.

Sir,

s many of your subscribers and correspon- nts have complained frequently of the ng delay in continuing the publication of Dr. pland's Dictionary, we shall esteem it a vour if you will insert in the Medical azette the inclosed copy of a letter which have just received from Dr. Copland on e subject.—We are, sir,

Your obedient servants,
Longman & Co.

39, Paternoster Row,
Jan. 21, 1841.

To Messrs. Longman & Co.

Dear Sirs,

The chief causes of my delay in bringing t the Sixth and Seventh Parts of my ictionary have been the revising and re- inting the Parts already published, and serious interruptions arising out of my noval to a new residence; the lease of my mer house having expired.

I am now constantly engaged on the work, and shall have the *Seventh Part* out in a very few weeks. A large portion of the remaining Parts is already written, so that I anticipate an early completion of the work—a consummation as earnestly desired by me as by yourselves.

Yours very truly,
James Copland.

5, Old Burlington Street,
Jan. 18, 1841.

A TABLE OF MORTALITY FOR THE METROPOLIS,

Shewing the Number of Deaths from all Causes registered in the Week, ending Saturday, the 16th January, 1841.

Small Pox	55
Measles	20
Scarlatina	17
Hooping Cough	43
Croup	6
Thrush	7
Diarrhœa	5
Dysentery	2
Cholera	0
Influenza	2
Typhus	35
Erysipelas	7
Syphilis	0
Hydrophobia	0
Diseases of the Brain, Nerves, and Senses	164
Diseases of the Lungs, and other Organs of Respiration	497
Diseases of the Heart and Blood-vessels	22
Diseases of the Stomach, Liver, and other Organs of Digestion	69
Diseases of the Kidneys, &c.	7
Childbed	10
Ovarian Dropsy	0
Diseases of Uterus, &c.	2
Rheumatism	1
Diseases of Joints, &c.	4
Ulcer	2
Fistula	2
Diseases of Skin, &c.	1
Diseases of Uncertain Seat	136
Old Age or Natural Decay	111
Deaths by Violence, Privation, or Intemperance	31
Causes not specified	2
Deaths from all Causes	1260

METEOROLOGICAL JOURNAL.

Kept at Edmonton, *Latitude* 51° 37 32" *N.*
Longitude 0° 3 51" *W. of Greenwich.*

Jan. 1841.	THERMOMETER		BAROMETER.	
Wednesday 20	from 26	to 37	29·97	to 30·09
Thursday . 21	21	33	30·25	30·39
Friday . . 22	24	41	30·28	30·08
Saturday . 23	31	40	29·96	30·03
Sunday . . 24	30	37	29·74	29·98
Monday . . 25	25	37	30·19	30·04
Tuesday . 26	30	47	29·94	Stat.

Winds, N.W. and S.W.

On the 20th, afternoon clear, otherwise cloudy; a little snow fell during the morning. The 21st, clear. The 22nd, morning clear, otherwise overcast. The 23rd, evening hazy, otherwise clear. The 24th, generally clear; snow and sleet fell during the morning; wind very boisterous during the evening. The 25th, clear. The 26th, afternoon clear, otherwise cloudy.

Rain fallen, ·1 of an inch.

Charles Henry Adams.

Wilson & Ogilvy, 57, Skinner Street, London.

THE
LONDON MEDICAL GAZETTE,
BEING A
WEEKLY JOURNAL
OF
Medicine and the Collateral Sciences.

FRIDAY, FEBRUARY 5, 1841.

LECTURES ON THE PRINCIPLES AND PRACTICE OF PHYSIC,

Delivered at King's College, London,

By Dr. Watson.

Lecture XX.

Iritis concluded. Rheumatic ophthalmia. Amaurosis.

The principal theme of the last lecture was that most interesting disease, inflammation of the iris.

The symptoms of iritis are these: a radiating zone of vascular redness situated in the sclerotica, and surrounding the cornea; a change in the colour of the iris, from grey or blue to a yellow or greenish tint, from brown or hazel to a dusky reddish hue; a visible deposit of lymph upon the anterior and innermost portion of the iris; a thickening of its free edge; contraction, irregularity, and immobility of the pupil; *closure* of the pupil by lymph; adhesion of the uvea to the membrane of the crystalline lens. All these we can see and ascertain for ourselves. We can ascertain also the presence of fever, which attends the acute forms of the disease. And we learn from the testimony of our patient that his sight is impaired; that the influx of light into the eye hurts him; and that he experiences pain in and around the organ, especially at night.

The grand remedies in iritis are three.

1. *Blood-letting:* of which the objects are to abate the force of the heart's action; to moderate the febrile disturbance; and to facilitate the operation of the second remedy: which is

2. *Mercury.* This is to be given so as to produce soreness of the gums, and the peculiar fœtor of the breath: and these effects are to be sought for rapidly or gradually, according as the inflammation of the iris is acute and violent, or moderate and chronic. The object of this remedy is to arrest the effusion of coagulable lymph; to put a stop to the adhesive inflammation.

3. The application of the extract of *belladonna*, to the conjunctiva or to the skin around the eye, so as to dilate the pupil. The objects of this measure are to prevent the adhesion of the iris to the parts in its neighbourhood; to detach it from the lens when it has already been glued thereto by soft lymph; and to stretch and elongate the bands of adhesion when they cannot be broken: and thus to obviate any impairment of the free movements of the iris, and any deformity of the pupil, after the inflammation shall have ceased.

I began to speak of the causes of iritis.

I say it may be occasioned by mechanical injury; as during the operation for the extraction of a cataract. A clean cut, however, is frequently followed by no bad consequences; a portion of the iris has been shaved off by the knife in making the section of the cornea, without any injurious result. When iritis is excited by mechanical violence, it is acute.

2dly. A chronic form of iritis is sometimes brought on by excessive employment of the eye, in looking at minute or bright objects.

3dly. The most common species of iritis is that which arises in connexion with syphilitic disease. It is one of the early secondary symptoms of syphilis. It is marked by the co-existence of other secondary consequences of the introduction into the system of the syphilitic poison, and by the periodical character of the nightly pain: it is never attended with abscess of the iris and hypopyon; the lymph that is effused is deposited in separate masses: and the pupil is often displaced towards the root of the nose, as well as rendered irregular, by the adhesion of the iris to the capsule behind it.

4thly. It is curious enough that iritis has actually been ascribed to *mercury*, as a cause. This notion can only have arisen from that loose kind of logic, and hasty generalization, for which, I am sorry to say, medical reasoners are too often distinguished. Mercury is perpetually exhibited for the cure of syphilis; and people who have been treated for syphilis are very liable to iritis. This seems to be the only foundation for the opinion in question. When we come to appeal to facts, we find no ground for believing that this mineral is thus, *both bane and antidote*. If it were so, Benvolio's advice to the slighted Romeo might be very pertinently offered to the *patient* in such a case:

> "Take thou some *new* infection to *thine eye*,
> And the rank poison of the old will die."

Mr. Lawrence has seen no instance of iritis, of whatever kind, in which there has appeared to him any reason for attributing the occurrence of the complaint to this cause. I have never heard it alleged that persons who have taken large quantities of mercury for other diseases, as for affections of the liver in India, are particularly subject to inflammation of the iris. On the other hand, iritis has come on, in hundreds of cases, in connexion with syphilis, though not a particle of mercury had been swallowed by the patients.

Lastly, there is a peculiar form or variety of iritis, called the *arthritic*, or *rheumatic*.

Arthritic iritis.—This affection is characterized by the following *general* features:—It occurs in persons who are subject to gout or rheumatism, and often forms a part of the attack of the one or the other of these diseases. Like them, it is liable to return again and again; and this circumstance it is which makes arthritic iritis a serious disease. It is seldom that much or permanent damage to vision is effected by a single attack; but adhesions readily form under it, and lymph is effused: and in each successive attack fresh effusion takes place; the pupil becomes more and more contracted; and it may be filled up, at last, by an opaque plug of lymph. Some patients, however, will suffer ten or a dozen recurrences of the disease, and recover almost completely, and enjoy perfect vision in the intervals, before the sight becomes much impaired.

Some of the *local* appearances are more or less characteristic of this variety of iritis. It is less frequently attended than the syphilitic variety by a deposition of lymph in distinct masses; the contracted pupil keeps its central position, and is not displaced towards the root of the nose, as it is apt to be in syphilitic iritis. The adhesions that bind the iris to the neighbouring parts are said to be *whiter* in this variety of iritis than in others. It is also a very remarkable circumstance that the zone of red vessels encircling the conjunctiva does not run up so close to the cornea as in other species of iritis, but a white ring is left between the cornea and the anterior margin of the zone. Sometimes this circular white stripe is partial, being most marked towards the angles of the eye; sometimes, on the other hand, it is as perfect as if it had been described with a pair of compasses. I believe, with Mr. Welbank, that the appearance of this bluish ring depends upon the less intense degree of the sclerotic inflammation. He says that he has noticed its coming on, when syphilitic inflammation of the iris was beginning to yield to the action of mercury; although there had been no such interval during the height of the inflammation. Again, the colour of the zone is not so bright as in other forms of iritis; it is of a somewhat livid, or slightly purplish tint: and the larger vessels at the back part of the eye, belonging to the conjunctiva, are apt to become tortuous and varicose.

Rheumatic *iritis* is often met with in combination with what is called rheumatic *ophthalmia*: a disease which I have not before mentioned. But each may exist alone. And as rheumatic iritis, though frequently an independent disease, does also in many instances grow (as it were) out of rheumatic ophthalmia, I will take this opportunity of shortly describing the latter complaint.

Rheumatic ophthalmia.—What is called rheumatic ophthalmia, then, is inflammation affecting the fibrous coat of the eye, the sclerotica. We know that the fibrous tissues throughout the body are frequently the seat of rheumatic inflammation. Some persons are more liable to rheumatism than others—are more readily affected by its exciting causes, which are vicissitudes of external temperature, and exposure to cold and wet. In such persons there seems a tendency to take on inflammatory action in all the structures of the same kind, and most particularly in the fibrous membranes and tendons that help to form the various joints; and as the sclerotica partakes of this fibrous texture, so it is apt to suffer, in its turn, from rheumatic inflammation. The connexion of the moveable eyeball with the head may be considered as a kind of *joint*. The local symptoms are not in general of a violent kind; and, as in other parts, the rheumatism seldom leads to any permanent alteration of structure; seldom, at least, when the ophthalmia is confined, as it often is, to the sclerotica alone. Perhaps the best way to put you in possession of the features that belong to rheumatic ophthalmia will be to describe an actual instance of it. I will take a well-marked example, related by Mr. Lawrence. He was sent for to see a gentleman who was suffering from what is commonly called rheumatic gout: swelling, some redness, and severe pain of one foot and knee, and one hand; aching of the back; and great constitutional excitement. He got well under the treatment adopted. After a short interval, upon Mr. Lawrence's calling to enquire how he was, he said there was something the matter with his eyes; and asked to have them examined. "I looked at them hastily," says Mr. Lawrence; "the room was dark, and the day dull; and I saw no appearance of disease. When I called again, after a few days, as the complaint was repeated, I examined more attentively. On bringing him towards the window, he obviously felt the light troublesome; he drew down the eyebrows, and half closed the lids, to avoid it. The conjunctiva was natural; but the whole of the sclerotica had a livid red, and mottled appearance, which might have been called dull, or almost dirty, in comparison with the red colour of common active inflammation. The sclerotic vessels were partially distended; the redness terminated short of the cornea, so that there was a distinct white rim round the latter. Vision was perfect; there was no pain so long as the eye remained at rest, but exertion of the organ, particularly under strong light, brought on uneasiness. The nature of this gentleman's occupations, and of his tastes, which were literary, prevented him from giving his eye the necessary repose; and the condition of the sclerotica just described lasted for three or four months;" so that Mr. Lawrence was apprehensive that some serious mischief would ensue to the organ. The affection remained confined, however, to its original seat, evincing only that obstinate character which belongs to disorders of such structures; and at last it disappeared completely, leaving the eyes with their organization and powers unimpaired.

The treatment that appears to answer best in simple rheumatic ophthalmia of this kind, consists in moderate topical bleedings, and counter-irritation; with such *other* measures as conduce to improve the general health; and among these, change of air and scene have sometimes a decided effect. Those remedies also are to be given which have been found by experience to be beneficial in rheumatic inflammation, although we cannot always *depend* upon finding them useful: colchicum, I mean; bark; sarsaparilla; the iodide of potassium. In these abiding or frequently recurring forms of disease, you will often be obliged to try the so-called specific remedies one after the other.

Now when the rheumatic inflammation is not confined to the sclerotic, but creeps inward, as by their vascular connexions it easily may, to the *iris*, we name the disease according to the most important part that it occupies—arthritic *iritis*. On the other hand, when, with the affection of the sclerotic that I have been describing, there is combined a moderate degree of inflammation of the *conjunctiva*, this complex disorder receives a compound denomination; it is called *catarrho-rheumatic ophthalmia*.

Dr. Mackenzie states it as the result of his experience, that arthritic iritis seldom occurs in connexion with the earlier appearance of gout, while the patients still retain strong powers of digestion, and have the means of indulging their appetites: but rather with the asthenic and irregular forms of gout and rheumatism; when repeated attacks have been followed by mental depression, indigestion, flatulence, and languor. He has generally met with the disease in subjects beyond the age of fifty, very often in tobacco-smokers, and whisky drinkers, who have often suffered rheumatic affections, who are teased by headaches, acidity of stomach, bad gums and teeth, and lowness of spirits: in persons, that is, whose health has been impaired and broken by intemperate habits. I believe you will find this to be a very correct statement; although arthritic iritis *may* also take place in those who are more robust.

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I should have mentioned another remedy, which of late years has been recommended in iritis, and especially in syphilitic iritis, by Mr. Carmichael, of Dublin: not as being a better remedy in itself than mercury, or so good, but as having considerable power over actually been ascribed to *mercury*, as a cause. This notion can only have arisen from that loose kind of logic, and hasty generalization, for which, I am sorry to say, medical reasoners are too often distinguished. Mercury is perpetually exhibited for the cure of syphilis; and people who have been treated for syphilis are very liable to iritis. This seems to be the only foundation for the opinion in question. When we come to appeal to facts, we find no ground for believing that this mineral is thus, *both bane and antidote*. If it were so, Benvolio's advice to the slighted Romeo might be very pertinently offered to the *patient* in such a case:

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I should have mentioned another remedy, which of late years has been recommended in iritis, and especially in syphilitic iritis, by Mr. Carmichael, of Dublin: not as being a better remedy in itself than mercury, or so good, but as having considerable power over the disease, and, therefore, as affording a valuable resource when from any cause the exhibition of mercury is forbidden. This remedy is the *oil of turpentine*. He gives it in drachm doses, three times a day. He relates cases of syphilitic iritis in which the pain, redness, and other symptoms, were quickly removed, and effused lymph absorbed, and vision restored, under the use of this medicine. It is necessary to its beneficial action that the bowels should not be confined. In other cases of the same disease Mr. Carmichael was not so successful. Mr. Guthrie, who has also tried this remedy, reports of it that "in some cases it succeeded admirably, in others it has been of little service, and in some unequal to the cure of the complaint." I do not know that it has been fairly put to the test in arthritic iritis.

I proceed next to quite a different kind of ophthalmic disease from any that we have yet considered. I have spoken of inflammation of the exterior membrane of the eye occurring separately; and of inflammation of certain internal parts, and particularly of the iris, occurring separately. Between these exterior and interior tunics, the sclerotica forms a sort of natural barrier or shield, the chief point of connexion between them being near the edge of the cornea, where the sclerotic vessels dive through to reach the iris. Inflammation of the sclerotica itself has also been described. When vision is impaired or destroyed in consequence of any of the complaints that have hitherto engaged our attention, that effect results from the partial or total exclusion of light from the retina. The cornea is left opaque, or it bursts; the pupil, or aperture in the iris, is shut up by a web of lymph; or the capsule of the lens to which the iris adheres has undergone a change, and lost its transparency. In each case the retina suffers an eclipse.

But light may be freely admitted, and yet no vision ensue. The transparent parts of the eye, the several media, so skilfully and exquisitely adjusted for the due refraction and collection of the rays of light into an image of the object from which they flow, may all be perfect and in order; but the beautiful apparatus is useless; the patient cannot see with it. The fault is in the *nervous* matter that should receive and transmit, and *perceive* the impression.

Amaurosis.—Now persons in this condition are said to have *amaurosis*. The term is derived from the Greek word *αμαυρος*, which signifies obscure or dark. It expresses various degrees of imperfect vision, from defective nervous function. The words *gutta serena* are applied to that form of amaurosis in which vision is totally lost. It was formerly supposed that this sort of blindness was caused by the effusion of some humour or fluid behind the pupil: and this was held to be a clear fluid, because the natural blackness of the pupil is sometimes not troubled in amaurosis. Milton has literally translated this term when, speaking of his own eyes, he says,

"So thick a *drop serene* hath quenched their orbs."

Amaurosis is a very *obscure* disease. It is capable of being caused by various changes, the exact seat and nature of which we often have no means of determining during life, and which frequently leave no traces behind them in the dead body. It would take a much larger space than I can possibly devote to it in these lectures, thoroughly to discuss this difficult but interesting subject. I shall endeavour to give you such a sketch of it as you may fill up and complete by future observation, and reading, for yourselves. It will be something to learn the direction and objects of our enquiries into what is yet unknown in the pathology of this affection.

There is one division of the disorder which immediately suggests itself. The cause of defect may exist in the brain, at or beyond the origin of the optic nerve; or it may be situated in any part of the course of that nerve, from its commencement at the base of the brain to its termination in the retina: or it may be confined to the retina itself.

There is reason to believe that the functions of the retina itself may be impaired or suspended, by deviations from the natural quantity of blood sent to it; by disturbances of its circulation. Various degrees of amaurosis are common among persons who employ the sense of vision overmuch, and strain the eye. This over-use is likely to produce congestion, or chronic inflammation, in the vessels of the retina; and very slight changes of that kind may seriously affect the function of a part so delicate and tender. I say we frequently meet with amaurosis among those whose occupations oblige them to look attentively at small or bright objects during many hours of the day; or what is still more pernicious, during many hours of lamp or candle light; so as habitually to fatigue the eye. Engravers, printers, watchmakers, tailors and milliners, mathematical instrument makers, persons who gain their bread by writing, miniature painters, cooks who are exposed to the heat and glare of large fires, men who have the charge of forges and furnaces, and so on. Here a continual stimulus leads to a chronic disorder, which increasing in intensity may terminate in total blindness. We call these cases of *amaurosis*, but they may be justly considered to be instances of chronic inflammation of the retina: we cannot see the suffering part indeed during life; and the complaint is not a fatal one, and, therefore, we have few opportunities or none of examining after death the condition of the retina while the amaurosis is yet recent. But judging from the nature of the *causes* that precede the defect of vision, and from the nature of the *remedies* that are often found to remove it, we are warranted in regarding the essence of the disease to be *retinitis*. The same condition, apparently, may be suddenly produced by the transient operation of some more powerful cause of congestion; such as intense light. I will illustrate this form of amaurosis — amaurosis, that is, dependent upon congestion which perhaps amounts to inflammation, sometimes slowly established, and sometimes very suddenly, by the narration of a few cases. I may as well premise, however, that the treatment which *promises* most, or I should rather say, which has *performed* most, in this form and kind of amaurosis, is very nearly the same (excepting the use of belladonna) that I have already recommended for chronic and acute iritis. *Blood-letting*, general or topical, according as there is more or less pain, and fever, and fulness of the system, and according as the amaurosis is more or less recent; and above all *mercury*, so administered as to affect the gums, and rapidly introduced into the system in the acuter cases; more slowly in proportion as the disease has crept on more gradually and lasted longer. This treatment is very often quite successful: the mercury is the most important part of it; and we have in this fact a strong corroboration of the inference drawn from the nature of the exciting causes, viz. that the complaint is essentially inflammatory. And again, supposing it inflammatory, we need not be surprised that a remedy, the curative effect of which we can *see* in inflammation of the iris, should be equally serviceable when the same diseased process is set up in the retina, which we *cannot* see. Purgatives, counter-irritation, and perfect repose of the organ, are necessary parts of the treatment in both forms of disease.

Mr. Allan gives the following account of the master of a printing office, who became blind. He had corrected the press, and was otherwise engaged in reading, for eighteen hours daily out of the twenty-four. He continued this practice for twelve months, notwithstanding an evident failure of his sight. At the end of that time the amaurosis was so complete that he could not distinguish one object from another, but was merely capable of just perceiving the light, so as to grope his way along the streets. He continued in this state for several years, but ultimately recovered his vision.

The next instance that I shall cite is recorded, in these words, by Mr. Lawrence. "A young woman, of florid complexion and full habit, came to the London Ophthalmic Infirmary, complaining that she had lost the sight of one eye. She was cook in a family, and occupied for several hours daily before large fires, supporting her strength by free living. The pupil was slightly dilated; the iris motionless. A faint and scarcely perceptible pink tint was observed in the sclerotica, near the cornea. Vision was dim, and had been so for three days. There was headache, flushed countenance, heat of skin, whitish tongue, and thirst. I considered the case to be pure retinitis; and to afford a favourable opportunity for showing whether the affection could be arrested by antiphlogistic treatment. At that time (now many years ago) I did not possess the knowledge of the powers of mercury in inflammation of the retina, which subsequent experience has given me. I directed a full bleeding from the arm, free purging, low diet, repose of the organ, and general rest. At the end of two days the sight was worse: cupping and a blister were now ordered; but there was no improvement at the end of two days more. I now determined on trying mercury, and ordered two grains of calomel every four hours. Before the remedy had affected the system, vision was quite lost, or at least reduced to the mere power of distinguishing light from darkness. Full salivation, which took place in about a week from the first application of this patient at the infirmary, suspended all the symptoms; the sight immediately improved, and was soon completely restored."

A soldier, unacquainted with the proper method of observing an eclipse of the sun, employed for that purpose a piece of opaque glass, with a transparent point in its centre. Notwithstanding the vivid and painful impression he experienced from the rays that passed through the lucid part of the glass, he continued to look at the sun till the eclipse was over, using his right eye. He was soon after seized with vertigo, and pain in the right side of the head, and found himself almost entirely deprived of the sight of the right eye. Some weeks afterwards, the pain in the head continuing, he came under the care of Baron Larrey, who observed that the vessels of the eye were injected, the pupil somewhat smaller than that of the other eye, retaining, however, its natural free motions; the vision very obscure or almost gone. This man recovered his sight completely after two bleedings, one from the temporal artery, the other from the jugular vein; blisters to the temple and nape of the neck; ice to the head, and moxas (*Mackenzie*, from the *Mémoires de Chirurgie*).

In the year 1832, a young man standing in a door-way, by a lamp-iron, in a thunderstorm, was struck by the lightning, fell backwards, and was convulsed. He said afterwards that the lightning appeared to enter his eye with a scorching sensation. During the night vision was quite lost. The next morning there was no redness, nor any unusual appearance of the eye. The iris was motionless, however, and the patient could not see even the sun. He was treated with calomel, and his sight returned; but the retina remained extremely irritable, and unable to bear the light. A month afterwards, when this account was written, he could see distinctly enough, but he could not use the eyes without the protection of blue glasses *(Lawrence)*.

In these cases the nervous apparatus that ministers to vision is not, I believe, in general, the only part of the nervous system that is injured. In August 1839, Phœbe Judge, a delicate looking girl, eleven years old, became my patient in the Middlesex Hospital. She had lost, in a great degree, the power of using her legs: when she attempted to stand they separated, and she sank down. She had not perfect control over her bladder. The desire to make water was frequent, and if not immediately attended to the urine escaped in spite of her efforts to retain it. The same urgency, and inability to wait, occurred whenever her bowels were about to act. Sensibility in the legs and thighs was impaired, but not extinct.

Her parents informed me that some time previously, while stooping to raise up a sister in a room at Hampstead, she had been struck by lightning, fell backwards, became blind, and remained so for ten days. She did not lose her consciousness, but complained immediately that the lightning had hurt her eyes. They presented no visible injury or defect, but the upper lids fell, and she was unable to raise them. It was soon found, however, that when pressure was made on the right eyelid she could open the other eye. The palsy of her limbs commenced, by degrees, two or three days afterwards. The power of vision returned suddenly, and at the same moment the power of moving her limbs was restored; but it gradually went again. When she lay down her limbs were still, but they began to tremble, and to be agitated, as soon as she sat up. Even when lying in bed, she had, occasionally, a sensation and dread, as if she were falling down. She had been in this state nearly three weeks.

She was put upon steel, and a tonic plan of treatment, and in ten days she could walk, dragging her left leg a little after her. In ten days more she was dismissed quite well, and able to run from one end of a long ward to the other.

The greater number of the cases of amaurosis depending upon a morbid condition of the retina itself, belong to the class that I have now been mentioning: there is congestion of the vessels of the retina; or inflammation, chronic or acute. In a few instances a totally opposite condition of the blood-vessels is presumed to exist. I say presumed to exist, because our judgment of this matter is founded, as before, on the nature of the circumstances that have caused the affection, and on the nature of the treatment that removes it. On these grounds some cases of amaurosis (few in number, speaking comparatively) may fairly be ascribed to a deficient supply of blood to the vessels of the retina. We know that a temporary defect of sight may be produced by a diminished circulation through the retina, as in approaching syncope under hæmorrhage; and we can therefore the more readily believe that more permanent amaurosis may be occasioned by causes that gradually lessen the quantity of blood circulating in the body, and debilitate the whole system. "It is well known (says the late Dr. Gooch) that large losses of blood enfeeble vision. I saw a striking instance of this in a lady who flooded to death. When I entered the chamber she had no pulse, and she was tossing about in that restless state which is so fatal a sign in these terrific cases. She could still speak; asked whether I was come? (she knew I had been sent for) and said, "Am I in any danger? —How dark the room is! I can't see." The shutters were open, the blind up, and the light from the window facing the bed fell strong on her face. I had the curiosity to lift the lid, and to observe the state of the eye. The pupil was completely dilated, and perfectly motionless, though the light fell full upon it. Who can doubt that here the insensibility of the retina depended on the deficiency of its circulation?"

One might ask, also, who can doubt that the retina *may* become insensible from a similar state of the circulation in it, brought on by some *long-continued* drain upon the system? Amaurosis of this kind, proceeding from too profuse and protracted a secretion (which may be considered a kind of hæmorrhage), is sometimes noticed in nurses. Mr. Lawrence describes the case of a young mother of slender make, who suckled her first child, which was strong, and took the breast very often: her milk was abundant. After two or three months she began to feel very weak, could not lift a weight, and cried frequently, without having any reason for uneasiness or complaint. She became totally blind, and was led to his house by a friend. He found her pallid, with a small feeble pulse. The pupils were of middle size, and the irides moved slightly. The retina was completely insensible. She could not discern the situation of the window, nor see a lighted candle held close to her. After weaning the child, and using generous diet, she got perfectly well. Some counter-irritation was employed in this instance, but I question whether it had any thing to do with the recovery. Such cases are not uncommon, and their well-known occurrence has probably tended to encourage the notion

—too prevalent among both patients and practitioners—that amaurosis is always essentially a disease of debility, and requires tonic and stimulant remedies; bark, and high feeding, and strychnia, and electricity. "Our eyes are *weak*," say they, "and we require strengthening medicines." You must perceive from what has already been said, how necessary it is to *discriminate* in such cases: to look closely into all the circumstances under which the disease has occurred.

When amaurosis is the result of pressure, or disease, in the course of the optic nerve, or in the sensorium, the complaint is generally less within the power of remedial measures. We cannot say, indeed, in many instances, where the cause of defect lies; and in obscure cases, I should always advise that a trial be made of the mercurial treatment. I have again and again seen slight palsy of some of the voluntary muscles, evidently depending upon some morbid condition of the brain, clear away rapidly upon the affection of the gums by mercury; and the lost power of the retina will sometimes return under the same plan of treatment.

There is something very peculiar in the expression of countenance, and in the gait, of an amaurotic person, by attending to which alone, you may almost recognize his disease. He comes into a room with an air of uncertainty in his movements; the eyes are not directed towards surrounding objects; the eyelids are wide open; to use a strange but common and intelligible phrase, the patient seems gazing upon vacancy; has an unmeaning stare; and there is a want of that harmony of movement and expression which results in a great measure from the information obtained by the exercise of vision. This seeming stare at nothing at all, is not observed in patients who are blind in consequence of opacity of the crystalline lens or its capsule, *i. e.* in consequence of cataract. They, on the contrary, although they cannot see, still seem to look about them, as if they were conscious that the power of sight remained to the retina, although light was shut out from it.

When the amaurosis is incomplete, the motions of the iris are sluggish, and the pupil larger than ordinary. When the blindness is total, the commonest condition of the eye is that of great dilatation of the pupil, so that a mere ring of the iris is visible; and complete immobility of the iris. No change takes place in the diameter of the pupil, under the greatest variation of the light that falls upon it.

Sometimes, on the other hand, though the amaurosis is total, the iris is as active as ever; and this is a very interesting circumstance, and may enable us, in some degree, to conjecture the actual seat of the malady. When the amaurosis is confined to one eye, *this* may happen. You examine the diseased eye, and you find that the pupil enlarges, or contracts, as you diminish or increase the light. But the other eye is open. Shut the sound eye, and try the amaurotic eye again, and you find the pupil fixed, although you vary the light. The motion formerly noticed was sympathetic of the motion of the iris in the healthy eye. We express this otherwise by saying that the *associated* movements of the iris were natural and lively, but its *independent* movements were lost. But sometimes the independent movement is unaffected; nay the motions of both irides may be perfect, although both eyes are completely amaurotic. I may state, by the way, that *cæteris paribus*, when both eyes are affected, that is a ground for supposing the cause of the disease to be situated within the cranium. And I should come to the same conclusion if, in the case where one eye alone was amaurotic, I found the independent motion of the iris of that eye unimpaired. We know that in the healthy condition of the parts, the brightness of the light admitted to the retina determines the size of the pupil; but the motions of the iris do not depend solely or directly on the retina. It has been ascertained, by experiments made on animals, that the pupil can be made to contract either by mechanical irritation of the *optic* nerve within the cranium, or by irritation of the *third* nerve; a motor nerve which sends filaments to the ophthalmic ganglion, whence the ciliary nerves, passing to the iris, are derived. Now the optic and the third nerves have some link of connexion within the brain; and if the morbid condition upon which the amaurosis depends is situate deeper than that point of connexion, we may understand, I think, how disease so placed may destroy the power of vision, and yet leave the connexion between the retina and the third pair unaffected: and then the influence of light falling on the retina, though it fails to create a perception in the mind, will be reflected back upon the third pair of nerves, and so continue to govern the motions of the pupil. In conformity with these views, M. Andral relates cases in which amaurosis resulting from disease in the cerebellum was attended with brisk movements of the iris.

There are other causes of amaurosis besides those that I have already adverted to. It is sometimes produced by the presence of worms in the alimentary canal. It has some obscure connexion with teething, probably through irritation of the facial branches of the fifth pair. A physician of my acquaintance, residing in London, has a young son, who on two or three occasions has caused him great uneasiness, by becoming blind in one eye without any obvious cause, and with no visible change in the organ; but the blindness on each occasion has gone off again, apparently in consequence of the extraction of some teeth which had grown irregularly. I am assured by Dr. Ashburner that such cases are common. Mr. Lawrence relates a very singular instance of *dental irritation* giving rise to amaurosis. A man, thirty years old, was suddenly attacked with violent pain in the left temple near the eye, and in that side of the face generally. The pain continued to recur from time to time, and at length he discovered that he was blind in the left eye. By and by the cheek swelled, and some spoonfuls of bloody matter were discharged by a spontaneous opening in the lower eyelid, and then the pain subsided; but after some months it returned with great severity. The patient then went to Wilna, with the view of having his eye extirpated, and consulted Professor Galenzowski, who found the left eye totally insensible to light, with the pupil dilated, and no other visible alteration. He ascertained, however, that the first molar tooth on that side was carious: it had never caused the patient much uneasiness; and the toothache which he *had* occasionally suffered had not been coincident, in point of time, with the pains in the head and eye. Dr. Galenzowski thought fit to extract this tooth, and was greatly surprised at seeing a small substance protruding from the extremity of the fang. This proved to be a little splinter of wood about three lines in length, which had perforated the centre of the tooth, and had probably been introduced in using a wooden toothpick. A probe passed from the socket into the antrum, from which a few drops of a thin purulent fluid escaped. The pain ceased almost entirely, and on the same evening the eye began to be sensible to light. The vision gradually improved, and on the ninth day from that time, after thirteen months' blindness in that eye, he was able to see with it as perfectly as with the other. M. Galenzowski has since been in England, and he shewed Mr. Lawrence the tooth, and the splinter of wood. Doubtless he felt some pride in exhibiting these trophies of his exploit.

Amaurosis is said also to occur as an *hysterical* affection: and I am certain that I have seen this myself. An unmarried lady, of a very nervous and susceptible habit, came to town in great apprehension about her eyes, the sight of one of them being quite gone. I could perceive no defect in the eye itself. I saw her in consultation with Mr. Travers, who took an unfavourable view of the case, and thought the chance of recovery was very slender. I had one reason for hoping a better result, in the knowledge of some facts which Mr. Travers was not aware of till I mentioned them to him. I had been acquainted with this lady for some years, and during that period she had several times almost entirely lost, and again recovered, the use of her lower extremities. On two occasions she had been affected with aphonia, and unable to speak, except in a whisper, for months together; and then, on a sudden, without any apparent cause, her voice returned. I trusted, therefore, that this suspension of the power of vision in one eye might be a similar freak; and so it turned out. After a few weeks the sight returned, she knew not how; and she has since lost it a second time, and a second time regained it.

Certain poisons will produce temporary amaurosis; and the suppression of certain natural evacuations, as of the perspiration, of the menstrual fluid, and of the bleeding from piles, and the repulsion of certain eruptions, have been charged, by authors, with producing the same complaint.

In those cases in which amaurosis creeps on slowly and insidiously, as it is apt to do from various causes, and more particularly when it depends upon a low and chronic inflammation, engrafted upon habitual congestion of the vessels of the internal tunics of the eye, its approach is marked by sundry curious affections of the vision. The eye feels full or stiff, and sometimes there is pain of the head in its neighbourhood; the patient complains that he sees things through a fog or mist, or as if a thick piece of gauze were interposed between his eye and the object he is looking at. In the daylight, the gauze or fog seems dull and murky, but in the dark it often appears shining, reddish, and fiery: the flame of a candle is seen surrounded with a halo of prismatic colours. That amaurosis of this kind is often really dependent upon local congestion we are taught by the *lædentia;* by the circumstances that aggravate it: thus *straining* of any kind, which augments for the time the fulness of the vessels about the head, will make the mist appear more dense; the same effect may be produced by tying the neckcloth tight; or even by stooping. Boerhaave relates the case of a man who, whenever he was intoxicated, laboured under complete amaurosis: it came on by degrees, increasing according to the quantity of wine he drank; and after the drunkenness went off, his vision returned. Surely these phænomena are very illustrative of the way in which nervous disorders may arise, or be made worse, from mere local plethora, in almost any part of the body.

Sometimes the perfect amaurosis is preceded by a remarkable diminution of the apparent *size* of the objects looked at. A patient told Dr. Farre that a carriage, which happened to pass the window, seemed to him as small as a wheelbarrow, and the horses no bigger than dogs. More commonly ocular spectra become visible: that is, parts of the retina lose their power, or perhaps are eclipsed by turgid vessels: the patient sees flies in the air, *muscæ volitantes*, particles of soot, *blacks*, as we, who live in London, call them, which always float before his eyes, and seem to follow their motions; and which are especially plain and troublesome when he is looking upon a white surface. They multiply in number till the whole becomes dark.

Do not, however, suppose that the appearance of these muscæ volitantes, even when they are permanent, necessarily implies the approach of amaurosis. I should be sorry if it were so, for I see two of them every morning, when my eyes are directed towards a white basin, while I am washing my face. I can find them at other times if I look for them: else, I am not sensible of their presence. They bode no farther evil, if they are associated with no other defect, in function or in appearance, of the instrument of vision.

It is obvious that no particular rules, no rules, that is, which will fit all cases, can be laid down for the treatment of so multiform a complaint as amaurosis. When it manifestly results from disease of the brain, as when it accompanies hydrocephalus, or remains after a stroke of apoplexy, our attention must be directed to the disease from which it has sprung. When there is any reason to suppose that congestion or chronic inflammation of the internal tunics of the eye itself is concerned in the production of the amaurosis, we must adopt the measures that I have already described, as the most likely to remove the congestion; and especially the mercurial plan. When there is ground for suspecting that the blindness takes its rise in vascular exhaustion, and nervous debility, we must have recourse to tonics; bark, preparations of iron, nourishing diet, the cold bath.

After all, you will find too many cases, which will baffle your best directed attempts, and in which you will be required and warranted to try other expedients. When what I may call rational measures have been expended in vain, you may have recourse to such as are empirical and tentative. There are various *stimulants* which have occasionally been found serviceable: but most of them, I believe, fail much oftener than they succeed. Electricity is one of these: it is applied by taking small sparks from the eyelids, and the integuments round the orbit. The object of this is to rouse the dormant energies of the impassive nerve: and it appears sometimes to do this for the retina, as well as for the nerves supplying voluntary muscles. Mr. Ware tells us that electricity is most beneficial in those cases in which amaurosis has succeeded a stroke of lightning. You must take great care not to employ this remedy when there is any inflammatory action at the bottom of the complaint: it should seldom be tried therefore when the affection is recent.

Strychnia has, of late years, been used for the cure of amaurosis. I shall hereafter take an opportunity of telling you the ordinary effects of that substance upon the body, when given in a certain dose—what is its poisonous operation, and what may sometimes be hoped from it as a remedy. In amaurosis it does good, when it is useful at all, by stimulating the exhausted or atonic nerve into action. With respect to this remedy also I may say—first endeavour to ascertain that it is not likely to do harm: that is, that the blindness is not dependant upon any condition akin to inflammation. Mr. Middlemore, of Birmingham, has probably given this remedy an ampler trial than any other person, and he speaks very favourably of its effects in certain cases: in others he found it to produce so much pain, and spasm, and distress, that he was obliged to discontinue its use. It is not given, in these cases, by the mouth, but applied locally, and Mr. Middlemore considers that it is most efficient when placed over the supraorbitary nerve. He puts a narrow blister over the eyebrow; when it has risen he cuts off the cuticle, and applies a piece of linen, for half an hour, to absorb the serum that continues to ooze forth; then he sprinkles the strychnia, finely powdered, upon the raw part, and covers it with linen smeared with the *unguentum cetacei*. He repeats this every twenty-four hours, cautiously increasing the dose till the vision improves, or some sensible evidence of the agency of the strychnia becomes apparent. He commences with the sixth part of a grain.

I must here leave this subject of diseases of the eye.

In addition to the lessons which I pointed out before as capable of being learned by attending to the disorders of this small organ, I may now mention a few others, of no little moment, since we shall meet with their application again and again, as we proceed to investigate the morbid conditions of other parts. We have seen enough to convince us that mercury, properly administered, has the invaluable power of stopping adhesive inflammation; of arresting the effusion of coagulable lymph from the blood-vessels: that inflammation of the same part may be sensibly modified by the simultaneous agency of some specific poison upon the system, as that of syphilis; or by the presence of constitutional tendencies to disease, such as are observable in gouty and rheumatic people. And we have seen that the functions of a nerve may be perverted, suspended, or abolished, in various ways: by *pressure* made upon it; by a *plethoric* state of its blood-vessels, or by an *empty state of them*; by *inflammation of its texture, chronic or acute*; or even, in some *mysterious, or hitherto unexplained manner*, by *mere irritation of a distant part*; by *worms, for example*, in the alimentary canal; by *poisonous substances introduced into the stomach*; and by what, in our ignorance, we denominate *the freaks and caprices of hysterical disorder*. All these lessons we shall find repeated, as the course advances.

LECTURES
ON
MORTIFICATION,
Delivered at the Medical Theatre of St. George's Hospital.

By Sir Benjamin C. Brodie, Bart. F.R.S. &c.

Lecture V.—Jan. 13, 1841.

Senile Gangrene.

Persons advanced in life are liable to mortification of the toes and feet; generally beginning in the former, and extending to the latter. By persons advanced in life I mean those who bear upon them the marks of old age, which may, however, occur at various periods of human existence. One of the worst cases of mortification of the toes which I ever witnessed, connected with what might truly be considered old age, occurred in a man of six-and-thirty, worn out by the operation of bad habits upon an originally bad constitution.

The question here arises, *in limine*, why is it that old persons are liable to this disease? Morbid anatomy enables us to answer this question. I have examined the bodies of a great many old persons who have died with mortification of the toes, and I have always found some morbid condition of the arteries of the affected limb. In the great majority of cases there is extensive ossification of the arteries of the thigh and leg. In many cases the arteries are not only ossified, but some of them are contracted and obliterated. Thus I have known the femoral artery to be obliterated from the origin of the *profunda* down to the ham. In other cases one or more of the arteries of the leg are obliterated, while the femoral artery is still pervious. In one case, of which I have preserved notes, the arteries were not ossified in any part of their course, but the femoral artery was converted into a gristly cord, and quite impervious from the origin of the profunda to the point at which it perforates the tendon of the great head of the triceps adductor muscle. In none of these cases in which the arteries were contracted and impervious were there any such appearances as would have indicated that the contraction had been the result of previous inflammation; and it appeared to me that the change which had taken place in their condition was best to be explained by supposing it to be the result of a process corresponding to that which produces stricture of the urethra or œsophagus.

It has been said that mortification of the toes in old persons is often the result of disease in the heart itself. This does not, however, exactly correspond with the results of my own experience. It is true that I have known persons who had disease in the heart to die of mortification of the toes; but then there was always enough in the condition of the arteries of the limb to account for the mortification, independently of the other disease. Thus in one case in which there was mortification of the right foot, the muscular structure of the heart was soft, thin, flaccid, and easily torn; one coronary artery was impervious; and the right iliac artery, for the extent of three inches, was impervious also in consequence of it being completely filled by a mass of firmly coagulated blood. In another case, in which there had been mortification of the right foot, the muscular structure of the heart was pale and flaccid: one coronary artery was contracted and impervious; the cavities were dilated; a mass of dense coagulum, resembling that found in the sac of an aneurism, occupied the appendix of the left auricle, and there was a similar coagulum obstructing the popliteal artery and vein of the right side, and extending some way down the branches of those vessels in the leg.

You are not, however, to suppose that mortification of the toes is a necessary consequence of ossification or obliteration of the arteries, and that it occurs in all such cases. I have no doubt that many persons have the arteries thus altered in structure for many years, although mortification never supervenes. I have already explained to you that in some cases the arteries are ossified, and at the same time either contracted or obliterated; that in others they are obliterated without being ossified, or ossified without being obliterated, even retaining their natural diameter. It is evident that the quantity of blood admitted into the limb must be different in these different cases, and that the liability to mortification must vary accordingly. But further than this: even where the arteries are rendered narrower, or actually obliterated, it seems that in general something more must happen to bring on mortification; and you will almost invariably find that the immediate cause is an attack of inflammation. Perhaps the following is not an unreasonable explanation of the phenomena which occur. The arteries are ossified, or they are partially obliterated; but still a sufficient supply of blood for ordinary purposes goes to the limb. By and by, from some cause or another, the foot becomes inflamed. I observed to you, in a former lecture, that during inflammation an increased supply of arterial blood seems to be required, and that the arterial trunks leading to the inflamed part become dilated, so as to allow this increased quantity of blood to enter; but if the arteries are ossified, they lose the power of dilatation; they cannot expand; the greater supply of blood required in consequence of the inflammation is withheld, and so the part perishes.

You might suppose, *à priori*, that persons in the lower condition of life, who live hard by their daily labour, would be more liable to mortification of the toes than other persons; but such is not the case; at least it has fallen to my lot to see comparatively few cases of this disease in the hospital; whereas, in private practice, I have met with a great number; so that for one case under my care in the former I have had three or four in the latter. It is one of the penalties paid by those who enjoy the advantages of ease and affluence, and who live luxuriously. It is persons who eat too much, and drink too much fermented liquor, and do not take sufficient exercise, that are especially liable to this disease, and not the labouring poor.

Ossification of the arteries is a change that can take place only gradually; and the obliteration of those vessels which I mentioned as occurring in some cases, probably takes place gradually also. You will easily believe that, under those circumstances, certain premonitory symptoms may arise in the lower limb before the disease is gone so far as to produce mortification. If you cross-examine a patient who has mortification of the toes, he will generally tell you, that for three or four years preceding he has had occasional pains in the lower limbs; a sense of numbness in them; that his feet were liable to be cold; that when they again become warm, after having been cold, they have been very painful; and that he has had a sense of weakness of the muscles. Such patients walk a short distance very well, but when they walk further the muscles seem to be unequal to the task, so that they cannot get on. The muscles are not absolutely paralysed, but in a state approaching to it. All this is easily explained. The lower limbs require sometimes a larger and sometimes a smaller supply of blood. When more blood is wanted, the arteries cannot open to let it in, and hence arise both pain and numbness. In walking, the muscles ought to receive an increased supply of blood, but, the arteries being ossified or obliterated, they are incapable of transmitting it; and this explains the sense of weakness. This last circumstance may be illustrated by what you observe in a particular disease of the heart. Dr. Jenner first, and Dr. Parry, of Bath, afterwards, published observations which were supposed to prove that the disease which is usually called *angina pectoris* depends on ossification of the coronary arteries. I will not say that such symptoms as those of *angina pectoris* can arise from no other cause, but I know that they do arise from it in certain instances. In two cases in which I examined the bodies of persons who died from the disease in question, I found ossification of the coronary arteries to a great extent, so that they were converted into complete bony tubes, while there was no disease of any consequence besides. When the coronary arteries are in this condition, they may be capable of admitting a moderate supply of blood to the muscular structure of the heart, and so long as the patient makes no unusual exertion, the circulation goes on well enough. When, however, the heart is excited to increased action, whether it be during a fit of passion, or in running or walking up stairs, or lifting weights, then, the ossified arteries being incapable of expanding to let in the additional quantity of blood which, under these circumstances, is required, its action stops, and there is syncope; and I say, that something like this may be observed in persons who have ossified or obstructed arteries of the legs.

These premonitory symptoms, as I have said, may exist for three or four years, until at last some accidental attack of inflammation occurs which induces the mortification. A very frequent occurrence is this: the patient cuts a corn, the knife goes below it, makes the toe bleed, and a little inflammation follows: or it may be, that the foot gets chilled by exposure to cold, and the patient goes to the fire to warm it, and that this is followed by a degree of inflammation which, if the arteries were healthy, would be a chilblain and nothing more, but which, in their present condition, lays the foundation of mortification. A slight degree of inflammation of the toes almost invariably precedes the mortification; vesications then take place, the vesicles burst, and at the bottom of them you find the cutis to be dead. This may take place in one toe, or in many toes at the same time. Most frequently, the disease having commenced in one toe, extends to the others, and then to the feet. Frequently, in the beginning of the complaint, there is a most intense pain, but sometimes the pain is very trifling. The mortification having once begun, a little inflammation is kept up on its margin, which slowly creeps up the foot, and the mortification follows it; the constitution being probably little or not at all disturbed, the pulse remaining at its natural standard, and the patient in all other respects thinking himself well. The disease, in fact, generally has, in the first instance, a chronic form; but sometimes it is otherwise, so that it exhibits all the characters of an acute disease. The man to whom I before alluded as old in constitution, though not in years, being only thirty-six, had been a soldier, and had served in Canada and in the East Indies—that is, in cold climates and in hot. He had, by his own acknowledgment, been a drunken fellow, and dissipated in other ways. Having been dismissed from the army as superannuated, he gained his livelihood by working as a labourer in the Edgware Road. Many times, on going to work, he suffered from cold and numbness of the feet, followed by violent pain. One morning in September (not a very cold time of the year) these sensations took place to a very great extent; severe pain and shivering followed, and his friends took him home in a coach. Two days afterwards he was brought to the hospital, and then all the toes of one foot were mortified, and one or two of the other. Under the treatment which was employed, and which I need not explain at this moment, he recovered. The dead toes came away, the sores healed, and he left the hospital as cured. Two years afterwards he was re-admitted with an abscess on one instep, and a sinus running under the skin. This occurred the year after I had been elected assistant-surgeon to the hospital; and not knowing any better at that time, I introduced a director under the skin and along the sinus, and, according to what I had been taught to do in a case of this kind, I slit open the sinus with a lancet, making an incision two inches in length. With my present knowledge I should have acted otherwise. Some inflammation followed the wound, which extended to the foot. The next day mortification had extended up the whole foot to the leg, the pulse was frequent and weak, the skin hot, and the patient lay in a state of stupor. Two days afterwards he died. You will observe that in each of these attacks the disease had the acute form, and that in the second attack it terminated life in about four days. I examined the body after death, and found extensive ossification of the arteries of both limbs.

The more common history of the disease, however, is this: in its origin it has the chronic form, but if it goes on it sooner or later assumes the acute form. The mortification may gradually spread up the toes and feet without any urgent symptoms, and this may be going on for weeks, and even for months: then, all at once, a fresh attack of inflammation takes place, the mortification extends rapidly, the constitution suffers, the pulse becomes feeble and rapid, the patient falls into a state of stupor, and dies in the course of a few days.

There is no form of mortification which is more dangerous than that of which I am now speaking. A large proportion, indeed, of the patients who are so affected, under any mode of treatment, die. You will not be surprised, then, that a great many different modes of treatment have been proposed. Where there is a disease that always gets well under a certain system, medical men have little inducement to make experiments; and the wisest make none at all. But in an intractable disease like this it is natural that practitioners should be always looking out for new remedies. I do not pretend to speak of all the variety of remedies that have been used or recommended; but I shall allude to the principal ones.

In the first place, those who have observed that the disease is preceded by inflammation have said, "bleed the patient; treat it like an inflammatory disease." I have no doubt that some have been led to recommend this from a mistake respecting the pathology of the disease, which I noticed in the last lecture; that is, from having supposed that this peculiar kind of mortification of the toes depends on inflammation of the arteries. I have, however, explained to you that the two cases are quite different. Bleeding has, however, been proposed, and in one instance I saw it tried. The mortification was to a very small extent; there was but very little inflammation round it, and the patient seemed to have a very fair chance of recovery. But immediately after the bleeding the mortification extended rapidly up the foot, and he died. Indeed, it appears to me that we have no right to expect that we shall cure this disease by taking away blood. There is inflammation, it is true; but if the inflammation terminates in mortification, it is because the part, on the principle which I just now explained, cannot get that additional supply of blood which an inflamed part requires. Now, if you abstract blood, and thereby lessen the quantity in the system and weaken the action of the heart, the supply of blood to the limb must be diminished, and the cause of the disease aggravated.

An opposite plan of treatment to this has been recommended by others. They have said, "this is a disease of weakness; give bark, quinine, serpentaria, and other tonics." Now there are certain kinds of debility which will be relieved by these remedies, but here there is only a local weakness, depending on disease of the blood-vessels. Will such remedies as these mend the condition of the arteries? Certainly they will not: but they will interfere with the digestion; they will prevent so much food from being converted into nourishment as would be converted into it otherwise; they will prevent the exhibition of stimulants which really are useful, as I shall explain presently. I own that I have very little, I may almost say no faith, derived either from theory or from practice, in the good supposed to be produced by the exhibition of what are called tonics. If you give anything of the kind, let it be ammonia, combined with the compound infusion of orange peel. Ammonia for a little time may be useful; but I think that there are objections to its long-continued use in this and in every other case. It appears to me that patients who take it for a long time are at last rendered weaker by it instead of stronger. It is an alkali, and produces the same effect on the blood that is produced by other alkalies. If it be taken, however, for a short time, it may be useful.

In the management of these cases there can be no doubt that one principal object to be kept in view is the maintenance of a sufficient supply of blood in the system. As the abstraction of blood is mischievous, so the opposite treatment is likely to be beneficial. Let the patient, then, be put on a system of nutritious diet, not overloading his stomach so as to produce a red or yellow sediment in the urine, but taking as much food as can be easily assimilated, and no more. Let him live chiefly, but not entirely, on animal food, which makes blood—if I may use the expression—of a better or stronger quality than that derived from vegetables alone. In addition to this the patient will require the use of some such stimulants as ale, wine, or brandy. You will generally find that persons who have mortification of the toes are such as have been accustomed to take a good deal of fermented or spirituous liquor, and being accustomed to it, that they cannot do without it. Nor is this all. Those whose mode of life has been different will require the exhibition of stimulants under these new circumstances. The question, however, will arise in each individual case, what is the proper quantity to be exhibited? Some persons may want a bottle of wine daily; but very few, on this, or on other occasions, are benefited by so large an allowance as this. In the majority of cases from half a pint to a pint daily will be sufficient. You should ascertain what have been your patient's previous habits, and then give him wine or ale cautiously, observing the effect produced. There is one good rule of conduct in this respect, both in health and in disease: wine that does not occasion heat of skin, that does not raise the pulse, nor make the mouth clammy, nor render the patient nervous or irritable, any quantity that does not produce these effects, may be given with advantage; but otherwise it does mischief.

In all cases of mortification of the toes I have observed it to be of great consequence to attend to the state of the digestive organs. If the bowels are not in a proper state, the food cannot be properly assimilated; and the patient being confined, as he must be, to his bed, the bowels will not act without assistance. I do not advise you to give purgatives every day, but rather an active dose may be required once in three or four days; such as two or three grains of calomel at bed-time, with an aperient draught on the following morning, or blue pill with compound extract of colocynth; and all my experience leads me to believe that this is a very essential part of the treatment.

Mr. Pott was either the first who recommended, or the first who brought into general use, the exhibition of opium in cases of senile gangrene. What is the *modus operandi* of opium here I will not pretend to say; but I can have no doubt, from all the experience that I have had, that there is really no internal remedy so useful as this. I can scarcely remember meeting with a single case of recovery in an old man, from mortification of the toes, in which opium had not been exhibited. But it is with opium as with wine; a good deal of discretion is necessary as to the exhibition of it. You must not begin with very large doses of opium; they are too powerful for the constitution, and opium is mischievous if it keeps the patient dozing all the day. You may at first exhibit half a grain three times daily, and keep him slightly under its influence, but nothing more. If he continues to take it (and sometimes this may be necessary for months together), the dose will require to be increased; but you will never be able to persevere in the use of opium except you employ in combination with it those remedies which I last mentioned. Not only purgatives, but mercurial purgatives, are required by all persons who take opium in this manner, otherwise it stops the secretion of bile, and does mischief. The result of the case will very much depend on this—whether opium does or does not agree with the patient. If opium induces a feverish state of system, if it disturbs the sensorium, if it interferes in any way with the digestion of the food, and especially if it makes the tongue brown and dry, it can do no good; while the mere healthy action of it will be almost certainly beneficial.

With respect to the local treatment, the first thing is to keep the patient in bed. Not feeling very ill, he probably will wish merely to lie on the sofa; but this never answers; therefore send him to bed at once. If he strives against it for the first few days, he will be driven to bed at last, and will be worse than if he had gone there in the first instance. I think a great deal of the success of the treatment will depend on his being placed in the uniform warmth of bed at the very commencement of the attack. Rest in bed in the recumbent posture is essential. Then, what local treatment is required besides? It is common to apply poultices made of grounds of stale beer, or of red wine and oatmeal, and some recommend a solution of chloride of soda. I was accustomed formerly to rub the legs and thighs with a stimulating liniment, but I soon left off this practice, finding that it did no good; and I believe now that, if it does anything, it does harm. Why do the toes mortify? Because when inflamed they do not get a sufficient supply of blood. Rub the thigh and leg with a stimulating liniment, and it is the same thing, only less in degree, as blistering them: and what would be the consequence of applying blisters? It would draw the blood to another part. You want it in the foot, and you draw it elsewhere. It is something like taking blood from the arm, not indeed so mischievous: less in degree, but the same in kind. Then, I must say, that I have never seen any good from it in practice. Neither have I any reason, from what I have seen, to believe that those other applications which I have mentioned used as poultices and lotions are of any use.

Some few years ago I was in consultation with the late Mr. Vance, of Sackville Street. He had been surgeon for many years to Greenwich Hospital. Being always anxious to obtain what information I can from others, I observed to him, "You must have seen among the old men at Greenwich a great number of cases of mortification of the toes. What have you found, on the whole, to be the best local treatment?" He answered, that he had found nothing to answer so well as wrapping up the parts in carded wool. I did not understand from him whether he wrapped up merely the foot or leg, or the whole limb; but he added that he usually left it on for many days. It struck me that this was a very reasonable kind of practice. Wool is a very bad conductor of heat, and wrapped round a limb it must keep it of very uniform temperature, and at any rate save, in a great degree, expense and trouble of generating animal heat. Soon afterwards I had an opportunity of adopting Mr. Vance's mode of treatment. I had been poulticing a foot as usual, and the disease was going on spreading from one toe to another, and up the foot. Carded wool is so prepared that it may be drawn out in long flakes several feet in length, and in these I wrapped up the foot; and then, thinking that I had better proceed further, I wrapped up the leg and the thigh also, as high as the middle of the thigh. I applied it rather loosely, one flake over another, until the limb appeared to be three or four times more bulky than it was in its natural state. The result was excellent. The mortification never spread from the time that the wool was applied, and the patient recovered. I have employed the same local treatment since in other cases, and although, of course, it would be absurd to represent it as always successful, yet I feel bound to say that I am satisfied that it produces much better results than any which I have ever employed.

In employing the wool, recollect that you should apply it loosely and uniformly, and plenty of it. You may afterwards sew it all up in a silk handkerchief, and leave it unopened for several days, sometimes a week. You may lay a simple dressing of calamine cerate on the mortified parts, replacing it whenever you change the wool. If the mortification stops, and the slough is coming away, you may, on account of the discharge which takes place, change the wool every other day. The carded wool possesses, as a little consideration will prove to you, many advantages over the poultices. In the first place, if you use poultices the limb is exposed alternately to cold air and hot poultices three times every twenty-four hours, that is, to repeated changes of temperature. In the intervals it is at any rate left to generate heat as usual. But if you wrap it up in carded wool, both these things are avoided. In another respect, also, this mode of treatment is a great comfort to the surgeon, the patient, and the whole family. Two or three times daily, whenever the poultices are changed, the family inquire, "Is he better? is he worse? is the mortification stopped?" You are called upon to answer these unanswerable questions, and the patient's mind is kept in a constant state of excitement. But if you put on the carded wool, and leave it there, his mind in the interval is tolerably tranquil: he lives upon the hope that when the wool is next taken off the parts will be found better; and such a state of mind is much more favourable to his recovery than the nervous anxiety which he experiences when the limb is examined more frequently. I believe that there are very few cases to which you will not find this method of treatment applicable. If there be any, it is those in which there is great inflammation and heat of skin, and in these it may be prudent to defer the application of the wool until these symptoms are abated.

Whenever the mortification is arrested, you will be made aware of it by a line of separation on the margin. The process of separation proceeds, in favourable cases, until the bones of the toes come away. You may have to cut through some dead ligaments and tendons, in order to promote the separation of the offensive and putrid parts, but you must cut through nothing else. If you apply your knife to living parts, you will certainly bring on a fresh attack of mortification. Leave the separation altogether to nature, and the natural process will do all that is required.

But there is another question. A man has mortification of the toes, and, independently of experience, you might naturally say,—here is a most dangerous disease; why not at once amputate the limb? It is probably unnecessary for me to tell you that it would be contrary to all the old rules of surgery (for which I have great respect) to amputate a limb under such circumstances. I have never seen it done: I have never done it myself, but I have heard of cases in which the surgeon was, shall I say fool enough or ignorant enough? to venture on this summary proceeding of cutting off the leg, because the toes were beginning to mortify. In every instance the stump mortified directly, and the patient died. The chance of recovery from mortification of the toes is not very considerable—that is to say, there is a great chance of the patient dying; but still, under proper treatment, there is also a fair chance of recovery, and you ought not to risk this chance by inflicting on the diseased limb so severe a local injury as belongs to amputation.

I have told you that disease of the arteries lays the foundation of mortification; but the disease may exist many years without mortification supervening, until some accidental circumstance brings on inflammation. I have known persons with disease of the arteries, and several toes mortified in consequence of it, in whom the mortification has stopped, the sloughs have separated, the sores have healed, and who have lived for years afterwards. I know a gentleman who is now alive, and in good bodily health, at least he was so not long since, whom I attended for mortification of the toes nearly five years ago. This patient was treated on the carded wool plan, and I cannot but suspect that it did something more than relieve the disease at the time. At all events, it may be admitted as a question, whether the keeping the limb wrapped up in the carded wool, which is like keeping it in a vapour bath, may not ultimately produce some beneficial change in the condition of the diseased arteries; not indeed removing the phosphate of lime, which is deposited in their structure, but leading to their becoming gradually and slowly expanded, so as to allow of a more liberal supply of blood to the limb. Whether this suspicion be or be not well founded, I suppose that no one will doubt that it will be prudent in all cases to advise the patient after his recovery, always to wear a thick fleecy hosiery stocking, or to use some other kind of warm clothing, so as to preserve the limb from the influence of the external cold.

I must add a very few words respecting the treatment during the process of separation of the dead parts. Bark, quinine, and other tonics, may be useful now, though they were not so before. Wine, and a generous diet, are still required; and some stimulating dressings, such as the unguentum elemi compositum, may be useful applications to the sores.

MUSCÆ VOLITANTES.

To the Editor of the Medical Gazette.

SIR,

HAVING ascertained, beyond a possibility of doubt, the nature of this annoying defect of vision, a few words of explanation may relieve the anxiety of many a nervous patient, and also be satisfactory to the profession. It is possible that others have made similar observations; but if so, they have not been communicated to the public in any work that has ever attracted my notice. I have often heard even medical men express a dread of ultimate consequences from this simple, evanescent, and unimportant malady.

I received my first knowledge of this disease (if indeed it can be called disease) from the celebrated oculist, Mr. Ware; and not doubting that a man so well acquainted with the organ of vision, its physiology and pathology, must be correct in his opinions, I made, during many years, futile attempts at cure, without investigating the matter for myself. Having, however, suffered annoyance in my own person from this cause, I was induced to examine it with more attention, and I then found that all the ingenious explanations which had been offered were absolutely without a shadow of foundation, and that the case was nothing more than an opacity of the lachrymal fluid.

To be convinced of this it is only necessary to fix the eyes steadily on some stationary object, and abstain from letting fall the eyelids. Chains of luminous rings, black spots, little brilliant annular specks, and other fantastic forms, gradually and slowly fall down in a sort of shower. The moment the lid is dipped into the groove conveying the tears to the punctum lachrymale, all these objects are dispersed into fresh forms, infinitely varied, to fall down again gradually, as before, over the eye, while kept steady, or to be spread right and left by the slightest lateral motion; the chains of luminous rings, more especially, being broken and re-arranged *ad infinitum*.

The conviction produced by this simple experiment is at once so complete and so instantaneous, that I never yet met with a man who required a single word to be added to confirm his belief; and when it is considered how minute a substance, so near the axis of vision, may produce such an effect, and how naturally different degrees of opacity and adhesiveness may give the form of black spots, annular specks of light (single or in chains), &c., the phenomena are easily explained.

The causes of this malady are various; disordered stomach, fatigue, want of sleep, long fasting, and many others, may be enumerated, each of which must be addressed by its appropriate remedies; but in the immense majority of cases the disease is not connected with constitutional or general disturbance, but is completely local, and may be removed by a collyrium of sea water, or the application of a blister not larger than a sixpence near the lachrymal gland, and a collyrium composed of one grain of sulphate of quinine to three ounces of distilled water, with just sufficient excess of sulphuric acid to keep the fluid transparent.

Perhaps I have said too much on so trifling a malady; it is, however, sufficient to give great annoyance and alarm to those who have leisure to attend to minute sensations interfering with their comfort. I am, sir,

Your obedient servant,
A. L. Wigan.

Brighton, Jan. [illegible], 1841.

OPERATION FOR THE CURE OF WRY-NECK.

To the Editor of the Medical Gazette.

Sir,

The following account contains the particulars connected with an operation which I performed, on Saturday, the 2d of January last, for the cure of wry neck; should you consider it sufficiently interesting, as the operation is somewhat novel in this country, I should feel obliged by your insertion of it in your next number.— I am, sir,

Your obedient servant,
Henry Symes, M.R.C.S.L.

[illegible], Jan. 27, 1841.

[illegible] [illegible]h, a delicate girl, aged 16, [illegible] [illegible]ect of congenital contrac[illegible] [illegible] right sterno-cleido mastoid [illegible] on examination, the fol[illegible] [illegible] presented them[illegible] [illegible] was closely ap[illegible] [illegible] the shoulder, the right mastoid process lying within two inches of the clavicle. The face was drawn to the opposite side, looking obliquely upwards. The right clavicle was extremely convex, and seemed as if pulled upwards; the right shoulder was raised at least three inches higher than the left; the trapezius muscle of that side being exceedingly prominent, forming, when the head was bent to the opposite side, a large ball. The deformity (as will appear) was not at all connected with any spinal affection, for, on tracing the spinous processes of the vertebræ, they were found to preserve their normal direction. There was a lateral curve in the cervical region, but this depended *solely* upon the contracted state of the muscle. Being satisfied, from this examination, that the spine had no share in the deformity, I determined on the division of the muscle, which I performed after the following manner, and which has been, on several occasions, so successfully performed by Professor Dieffenbach, of Berlin.

The patient being placed in a chair, I caused the head to be drawn to the opposite side by one assistant, whilst a second depressed the shoulder of the affected side. The muscle being thus rendered more prominent, I passed a narrow curved bistoury about an inch above the clavicle behind the muscle, dividing both its origins as I withdrew the knife, without causing any further wound of the skin, when scarcely a drop of blood followed. At the moment of the division there was an audible sound; and the head not only became immediately erect, but the prominence also greatly diminished, and the shoulder itself fell at least an inch. A dossil of lint was firmly applied by adhesive plaster, so as to prevent extravasation, or if any, by its pre[illegible] to cause its speedy absorption. [illegible] patient, who seemed to suf[illegible] slightly from the operation, w[illegible] sent to bed, where she remain[illegible] the following Friday, durin[illegible] time the head was kept [illegible] position by the use of ba[illegible] the removal of the lint, [illegible] had not b[illegible] [illegible]di[illegible] found th[illegible] there wa[illegible] coloratio[illegible] a stiff pas[illegible] ner as to the head to the opposite side, which served to elongate the callus. By the use of straps, and by confinement to an inclined plane during a greater portion of the day, for a fortnight, the prominence has nearly disappeared. The shoulder is now on a level with its fellow, and the head is perfectly upright; so that, to an ordinary observer, the patient presents no vestige of her previous deformity.

HIP DISEASE AND LUMBAR ABSCESS.

To the Editor of the Medical Gazette.

SIR,

ENCLOSED is the first of a series of papers containing observations on the diagnosis, pathology, treatment, &c. of hip disease and lumbar or psoas abscess, which I shall feel obliged by your inserting in your valuable and widely circulating journal, provided you think them of sufficient practical utility and importance to merit your attention. I am the more anxious to secure your acquiescence, because a day or two since a work, by Mr. W. Coulson, on Diseases of the Hip Joint, second edit. 1841, with "alterations and additions," came under my notice. I was not a little surprised to find, on a casual inspection of its contents, that many of these "alterations and additions," consisted in observations and allusions to the practice pursued by me in these disorders at the Royal Sea-Bathing Infirmary, without the most distant acknowledgment of the source from whence they were derived, save and except through the medium of the following note, on the first page of the advertisement:—"One of my sources of information, and perhaps it is the most extensive field in the world for the observation of scrofulous diseases generally, has been the Royal Sea-Bathing Infirmary*, at Margate," &c. [illegible] fully aware, sir, that your journ[illegible] noxious to subjects purely c[illegible], and no one can be more [illegible] myself to the propriety of [illegible] from a journal devoted like [illegible]ience only, [illegible]ers of a like [illegible]. My intention on this occasi[illegible] secure to whatever ti[illegible]ty these may justly [illegible]fore I offer them to the public through the medium of your pages; but to do this it is necessary that I should produce the following verbatim copy of a letter in my possession, which I received from Mr. Wm. Coulson in April 1836, in order to expose the proceedings of himself, and Mr. G. B. Childs, his friend and relative:—

2, Frederick's Place, Old Jewry,
April 22d, 1836.

My dear Sir,—I am preparing a second edition of my treatise on the Hip Joint, and you will very much oblige me by giving me the result of your experience in the following queries, or any other point which may strike you connected with the disease:—

1. What are the appearances of the joint and the surrounding parts which you have observed in those who have died of hip disease?

2. Have you ever found, on dissection, the head of the bone dislocated, and a new acetabulum formed?

3. What viscera or internal organs have been principally affected in those who have died*, and the nature of the affection?

4. Upon an average of the last five years, how many hip cases per annum?

5. In what stage of the disease are they chiefly admitted?

6. Can you form any opinion as to the age or sex at which hip disease most frequently occurs?

7. The usual situation of the abscess?

8. Have you observed any unusual direction to the exit of matters, as through the bladder or rectum?

9. Is there often much superficial ulceration (I mean of the skin) in hip disease; in what class of cases does it occur; what effect does it exercise on diseases of the joint?

10. What treatment do you adopt in the infirmary in cases of hip disease, as regards local and constitutional remedies in the various stages; the application to the superficial ulcers, injections to the sinuses; whether you find early opening of the abscess advisable; the cases in which you recommend bathing, and the kind of baths; the diet; the iodine formulæ; in fact, every particular connected with your treatment of hip disease, which has always appeared to me very judicious †. You must have seen some cases many seasons. Can you say any th[illegible] about the duration of the disease? I [illegible] you have some theory respecting [illegible] abscess; for many cases which I [illegible] hip disease you were inclined to [illegible] lumbar disease. What are your

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* [illegible]son has pa[illegible] about [illegible] Infirmary [illegible]

* [illegible] season, a man called Ford very ill [illegible] and ascites; did he die?

† [illegible] as to the effect of sea air, &c.

views on this point? Have you ever seen a case of congenital dislocation of the hip-joint? Have you seen both hip-joints affected at the same time?

I am afraid that you will think me very troublesome, but I shall acknowledge with gratitude what you communicate. I shall be obliged by your writing to me on one side only of the page (leaving the back blank), and I shall most cheerfully pay double, treble, or quadruple postage.

I hope to be with you in the course of the season.

An early answer will oblige, dear sir,
Yours very truly,
William Coulson.

P.S. Have you found the knee-joint affected at the same time as the hip? Does the disease in your opinion most frequently commence in the cartilage or bone?

My reply was to the following effect, that I was too much occupied by my duties at the Infirmary to afford him the desired information, especially as his questions referred to very important topics, added to which I had been for some years past collecting notes on the same subject with a view to publication, and that, under these circumstances, I trusted he would hold me excused. I will not encumber your columns or trouble myself by detailing the various devices, to which that gentlemen resorted in order to obtain from me that information which I felt it was only justice to myself at that time to withhold, but pass on to the period of May 1838, when Mr. G. B. Childs was appointed my assistant in the capacity of Dispenser, and, if his his services were required in that department, of Dresser. Bearing in mind what had passed between myself and his relative Mr. Coulson, I at once assured him that I should feel most happy to impart to him whatever knowledge a somewhat lengthened experience had obtained for me in the treatment of the various and numerous cases that had come under my observation, at the same time I begged he would distinctly understand that, whatever remarks I might make on these particular diseases, were to be considered by him exclusively as my own, and as the reason of my request, I showed him Mr. C.'s letter, and stated what had passed between us.

He expressed himself obliged to me for my candour, assured me of a strict adherence to my wishes, and admitted that he had been requested by Mr. Coulson to furnish him with a report of these particular cases under my care. Pleased with so much apparent just and proper feeling, and relying upon his honour, I henceforth treated him in the light of an intimate friend, affording him every opportunity and facility of obtaining whatever information he desired, in these and all other cases over which I held control. How he has kept his promise and repaid the offices of friendship will appear from the "following note," at page 75, of the work already alluded to. Mr. Coulson observes, "for the following note I am indebted to my friend Mr. Childs, who was House Surgeon (?) at the Infirmary in 1838." Hereupon follows a rather copious description of the mode of treatment peculiar to myself, more especially with reference to that which I have ventured to term the hepatic (which I shall have occasion to dwell on hereafter), the mode of exhibiting internally the iodide of mercury*, warm bathing, its effects on scrofulous sores, &c. and this, without stating that he was indebted to myself alone for the information; but as I prefer becoming the exponent of my own particular views and treatment to the garbled statements of others, I shall recur to these particular topics, thinking it probable that your readers may chance to prefer the opinions resulting from 14 years' experience, to those of a young man who passed six months only at the Infirmary, in a subordinate situation.

Ere I finally dismiss this subject, I cannot help observing how much I have been amused, or withhold myself from the pleasure of extracting a sentence or two that occurs in the course of this note: "It is astonishing how the symptoms are frequently aggravated from the colon being overloaded. From torpor of the colon, I have seen the patient endure the most agonizing pains, which were immediately relieved by the action of a simple injection:"—Indeed! I entertain a very strong opinion that Mr. G. B. Childs might have remained in blissful ignorance of the cause of these "agonizing pains," if I had not taken some trouble, and that not a little, to enlighten him on the cause of these "agonizing pains."

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* The iodine treatment was first introduced at the Infirmary, by Dr. Canham, in the year 1833.

Again, he says, "a word or two with regard to sea-bathing." Modest young gentleman! "There is a certain description of sores in which salt water bathing is inadmissible, and over which the salt produces a decidedly baneful effect, retarding the healing process, and setting up such a degree of local irritation, as, proves highly injurious to the patients health in general."—"In lepra the irritation is so great as to be scarcely endurable; and not only is this the case, but I never found the symptoms in the least degree ameliorated, but otherwise:" Really! who told him this? Now if Mr. G. B. Childs, like his relative, had only been candid enough to say from whom he had derived his information, it would have passed well enough.

Should any of your readers feel sufficient curiosity to compare Mr. Coulson's knowledge of hip disease in 1836, as shown by his letter to myself, with that of his works in 1837 and 1841, especially the latter, they will perceive that from one source or another, he has picked up a respectable stock of information.

At page 5, 2nd edition, 1841, he says, "It is often difficult to distinguish this stage of hip disease from incipient caries of the spine:" we are to infer, I presume, that this refers to caries of the lumbar vertebræ. Again, at page 34, "the disease of the hip at this stage may be mistaken for psoas abscess;" and then follow the diagnostic distinctions. On reverting to that paragraph of Mr. Coulson's letter which refers to this particular point, and runs thus:—"I know that you have some theory respecting lumbar abscess, for many cases that I regarded as hip disease, you were inclined to regard as lumbar disease—what are your views on this point?" I have only to observe that our views differ very materially, as will appear hereafter. P. 57, "the liver, the largest secreting organ, seems almost universally to be affected in this disease." From whom did he learn this? Page 75, "in every case of this kind an accurate examination should be made of the viscera," &c. At page 89, Mr. Coulson "thinks that the officers of the infirmary will bear him out in saying, that they have never seen any good arise from the use of moxæ, setons, &c." Considering that I have abandoned that practice ever since the year 1829[*], I, for one, shall feel most happy, and, I think I may venture to assure him that the rest of the "officers[†]," will readily bear him out, and will do the same kind office for myself.

It is needless for me to pursue these observations further; and I trust, sir, that your readers will consider Mr. Coulson's letter of 1836 decisive of whatever claim to originality I may possess, and which I have elsewhere stated is my sole object on the present occasion: and as I shall on no account, or under any circumstances whatever, revert to these topics as far as concerns Mr. Coulson and his friend Mr. G. B. Childs, I shall conclude this by assuring you that I am with every sentiment of respect,

Your obedient servant,
Wm. Oliver Chalk,
Resident Surgeon to the R. S. B. Infirmary.

**No. 7, Milton Street, Dorset Square,
North Side.**

ARSENIC IN SULPHURIC ACID.

To the Editor of the Medical Gazette.

Sir,

Having been recently engaged in some toxicological experiments, I was surprised by observing that the sulphuric acid employed contained arsenic in considerable quantity. The acid had been purchased of an operative chemist in this city: the price eight pence per pint, which is the sum usually paid for pure acid; the more expensive at four shillings and sixpence per pint being rarely required, even by analytical chemists. The quantity of white arsenic (as deduced from the weight of the sulphuret) in 20 fluid oz. of this eightpenny acid was 22·58 grs., a degree of contamination which becomes a matter for most grave consideration, when we reflect how many of our most common remedies are prepared with sulphuric acid. I may mention sulphate of magnesia and muriate of ammonia, the latter of which can scarcely escape contamination, if an arsenical sulphuric acid be employed. I lately obtained from Apothecaries' Hall a specimen of acid at eightpence per pint, and found it to contain even more arsenic than that which I have mentioned above. The acid, however, sold by the company at four shillings and sixpence per pint yielded no distinct evidence of the metal. It appears almost certain that there is a great abundance of arsenical acid in our market at present, which may probably be attributable to the use of pyrites instead of Sicilian sulphur in the manufacture of acid—the high price of the latter article having provoked competition. I have recently examined specimens of hydrochloric acid, and found them arsenical, but in far less degree than the sulphuric. I should not have published these observations until I had made further experiments on other articles used in medicine for the preparation of which sulphurric acid is necessary; but the important nature of the subject has prompted me to take the earliest opportunity of communicating these first results. It has been long known that arsenic exists in minute quantity in some varieties of acid, though that from the English market has been regarded as particularly pure. I am not aware, however, that the startling quantity of 22·58 grains in a pint has ever been suspected to exist in any acid whatever.—I am, sir,

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[*] Mr. Coulson was made acquainted with this fact at his first visit to the Infirmary in the year 1832, in his capacity of a Member of the Medical Board.

[†] Drs. Canham, Dennaison, and J. Waddington, Esq. Consulting Surgeon, have, for many years been acquainted with my particular views and practice.

Your obedient servant,
G. O. Rees.

Feb. 3d, 1841.

P.S. I may mention that arsenical candles are again in the market: it is only to-day that, from the symptoms observed in several individuals of one family, I was induced to examine the candles in use, and obtained from them a considerable quantity of arsenic.

MEDICAL GAZETTE.

Friday, February 5, 1841.

"Licet omnibus, licet etiam mihi, dignitatem *Artis Medicæ* tueri; potestas modo veniendi in publicum sit, dicendi periculum non recuso."
• Cicero.

PAMPHLETS ON MEDICAL REFORM.

Under ordinary circumstances we should apologize for returning so soon to a subject so often discussed; but medical reform is the great topic of the day, and we should ill discharge our office as faithful chroniclers, if we failed to record, in addition to our own opinions, those that come to us from every quarter of the compass. Among the late writers on this engrossing subject are Dr. Kidd, of Oxford*, and "A Provincial Physician," whose name it is not very difficult to guess†.

The first is a moderate reformer; the latter would prefer to let well alone, being almost or quite satisfied in an age of general discontent.

"Genuine reform," says Dr. Kidd, "is genuine conservatism;" or, if we might be allowed to translate his phrase into the language of Bacon, "A froward retention of custom is as turbulent a thing as an innovation; and they that reverence too much old times, are but a scorn to the new ‡."

In order to understand the character of the present desire for Medical Reform, the Professor thinks it right to begin by an abstract of the history of the College of Physicians. At the period of its foundation almost all physicians of London were graduates of the Italian universities, which were then the best schools of medicine in Europe.

The often quoted words of the charter, *omnesque homines ejusdem facultatis*, comprehended all who had graduated in medicine at any university, or who had been approved by the Bishop of London; and even as late as Charles the Second's time, it seems that all who had been examined and approved by the College were *collegæ*, or *socii*. The term "licentiates," indeed, appears to have been used as early as 1555; but at that period it signified those who were licensed to practise only in particular branches of medicine—for example, as oculists.

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* Observations on Medical Reform, by J. Kidd, M.D. Regius Professor of Medicine in the University of Oxford. 1841.

† Medical Reform in England, by a Provincial Physician. 1841.

‡ Essays. Of Innovations.

Gradually, however, bye-laws were passed, making a distinction between fellows and licentiates, the former alone being eligible to College offices. Dr. Kidd does not know why these distinctions were made, nor why in time the doctors of Cambridge and Oxford alone were eligible to the fellowship. One sometimes errs strangely when attributing motives to one's *abavi* and *atavi*; but we conjecture that the fellows of that day believed the innovation to be forced on them by time, " the greatest innovator."

When the College was founded, the Italian universities, as we have seen above, were in great repute, and their degrees were esteemed accordingly; is there any thing unreasonable in supposing that the College of Physicians began to grow exclusive, when continental academies had grown too facile? At the present moment we do not recollect a single foreign university whose degree, whether in medicine or arts, is considered, in this country, a feather in a man's cap. We do not pretend to weigh the merits of Paris and Dorpat, Copenhagen and Coimbra, in the critical balance, but merely register the general feeling of English society; and give it as a solution of Professor Kidd's difficulty. This ignorance of the merits of foreign universities may be wilful blindness and perversity; but it has been growing with England's growth, and strengthening with England's strength, and it is consequently not very wonderful that the London College, which in 1575 had more foreign than English degrees on its rolls, should afterwards have been more chary in their reception.

In the reign of Edward the First, an act was passed by which every man possessing an estate of twenty pounds a year was bound to send up his eldest son to be knighted; but it was a just complaint against Charles the First that he enforced this act for the sake of the fees when, from the altered value of money, this sum was a slender revenue. Now, Padua was a twenty-pound estate.

The extravagant length, however, to which the College carried their system of exclusion, and the law-suits to which it gave rise, would be a painful subject for commentary, were not every feeling of this kind dissipated by their liberal concessions of late years. They have justly thought that it is difficult to balance the claims of contending universities, and, rejecting all parchment testimonials, bestow their honours upon the living merits of the candidate. While it would be preposterous to make the titles of the easiest university a ground for admission, it would be equally wrong to consider them as an excluding brand; and the College have, therefore, taken that middle course, which will ensure the approbation of all thinking men, when the temporary heats of party are forgotten.

Professor Kidd informs us that there are nineteen sources for medical degrees or licenses, of which seventeen are in constant operation. He gives the smaller list at length, but we will mention two only, which might be likely to escape our readers' recollection: these are the Faculty of Physic and Surgery of Glasgow (besides the University), and the University of Durham. The list is certainly an awfully long one; and there would be no harm if one or two of its minor stars could be persuaded to extinguish themselves; but we doubt much whether the profession would feel eventually gratified by the forcible substitution of a bran-new board or boards for the old examining bodies; it is among the possibilities, that the fresh examiners might play such fantastic tricks, that even zealous reformers would like the new sumpsimus less than the old mumpsimus.

The change would be less striking, however, if Dr. Kidd's proposition were adopted, of representing each existing body by one or more of its members in the new board, in addition to the members chosen from the profession at large. He farther proposes that the existing institutions should continue to live on as independent scientific societies, each with its own library, museum, and lectures. If we had a vote on the subject, we should propose that the new boards be rather added to those already existing, than placed as extinguishers over them; for we have lived long enough in the world to hear with but little expectation of the ideal perfections of non-existing institutions. The New Boards (one in each of our three capitals) are to grant licenses "to practice in any and in all the three branches, into which the profession is actually and always must be divided," and the examination is to be such as to shew the candidate to be duly qualified to practise either as a physician, surgeon, or general practitioner. As to the scheme of the boards giving titles as well as licenses, which Dr. Kidd attributes to some of the advocates of medical reform, he thinks it useless; for, provided the board gives the general license to practice, "it would appear that the essential point is gained, as far as individuals are concerned." Not so, Dr. Kidd. An open-handed board is wanted, to bestow the title of M.D. on every comer, and to make the degree very respectable besides. The Irishman in the story is not the only person that ever wished an apple-pie to be made all of quinces.

Another point touched on by the Professor, is the want of legal protection, which, he says, scarcely one of the seventeen licensing bodies can afford its members. By legal protection he means exclusive privilege, which is, of course, given by the Army and Navy Medical Boards to those who have passed their examinations. The only other body in the list which attempts it, is the Worshipful Society. Their Act is stringent enough, and if they do not always succeed in their prosecutions, it is rather from the force of public opinion than from any loop-hole in the statute. It would require, indeed, several decisions of the Queen's Bench to settle what is meant by "practising as an apothecary." A friend on whom Dr. Kidd relies, supposes the protecting power of the society to be "limited to mere pharmacy, i. e. the preparation and sale of medicines." This is, assuredly, a mistake. Any one may either sell physic, or practice physic, without infringing the Act. It is the junction of the two which explodes the galvanic battery of the law.

The "Provincial Physician," whose learned and eccentric pen we immediately recognised*, desires no alteration. Far from sympathizing with those headstrong and headlong reformers or upsetters, who would change our very names, and cannot abide the style of physician or apothecary, he is for retaining all our present institutions. Our three great English corporations, with the druggists, those humble allies who close the rear, all come in for a share of his praise. The College of Physicians he esteems, for having been a model to the profession which it has ennobled. The College of Surgeons he admires as a body of volunteers. Ambition, not the painful compulsion of law, urges on the crowds who yearly obtain its diploma. The Apothecaries he praises, too, but does not agree with them when they lament the existence of practising druggists. "The Apothecaries are they who bewail their lot: or lend themselves to mischief-makers, which ululate in their abused name. These deluded gentlemen complain of the druggists; that they prescribe; that they practise. That they abstract unfairly the patients of the apothecary."

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* In speaking of the Apothecaries' Society, he says, "It is, with all its faults, a national blessing. I know the complaint that is uttered against it. That it has *not* protected its members. Not extinguished the quack. Not brought the druggist to his bearings. But this is not the fault of the Society. Rather of the complainants. The Society has done what it could. But this corporation is not a spirit. It does not possess ubiquity."

The force of *stopping* could no farther go!

The plain fact is, that the apothecaries. by their rise in society, have left a gap which has been filled up by the druggists. Sixpenny fees have no attractions to those who can get half-crown ones; and poor men do not like to thrust them on those who take them grudgingly; or, in the quaint language of the "provincial physician," they "are loath to knock at the repulsive door of the belackeyed surgeon." However we may regret that so difficult an art as physic should be practised by men of such slender acquirements as the majority of druggists, it is not easy to propose a remedy for the anomaly, which shall be at once agreeable to the profession and the public. The conservative physician proposes to allow the druggist to practise in his own house, but to enforce the law if he attempts to visit. "Drive back the delinquent to his counter." We fear that most of the profession would object to the first half of his proposal, and many of the public to the second.

As another exasperating topic he cites the salaries of the Union surgeons, and recommends them to be refused, as the proper remedy. The Cornish Association has resolved not to admit as a member any one who is sent down by the Poor-Law Commissioners. This looks well, certainly; and we gladly accept it as an earnest of better times

SIR ASTLEY COOPER.

We regret to state that Sir Astley Cooper has for some time suffered from an alarming attack on the chest, for which he has been attended by Dr. Bright, with whom, Dr. Chambers has been more recently associated. The account of to-day (Thursday) is that he has had an indifferent night, and is not otherwise improved.

REFORM OF THE MEDICAL CORPORATIONS.

A DEPUTATION, consisting of various gentlemen from the Colleges of Physicians and Surgeons, and Society of Apothecaries, waited upon Lord Normandy on Monday the 1st, on the subject of medical reform, more particularly with reference to certain conferences which have recently been held between the bodies whom they severally represented. The following is given in the Lancet of last week as the recommendations contained in the report of the Committee appointed by the College of Physicians; it will be found to contain some of those concessions which we dwelt upon in a recent article.

"The Committee appointed by the College of Physicians to confer with the deputation from the College of Surgeons, and the Society of Apothecaries, having carefully investigated the various grievances complained of in the several petitions to Parliament for Medical Reform, and having considered the communications from different fellows 'of their views, as to any or what changes in the present constitution of the College can be effected with safety to the great objects of the College,' submits the following report:—

The grievances alleged in the petitions for reform may be stated as follows:

1. The want of a general registration of licensed practitioners.
2. The absence of uniformity of education and qualifications in England, Ireland, and Scotland, and that licences to practise obtained in one country are invalid in the others.
3. Self-election to the fellowship of the College of Physicians, to the Council of the College of Surgeons, and to the Court of Assistants and Examiners of the Society of Apothecaries.
4. The exclusion of the licentiates of the College of Physicians from the use of the library and museum of the College.
5. The want of some legislative enactment respecting the licensing of duly qualified persons as chemists and druggists.

6. The want of some body or board to whom all questions of medical police, public health, &c., should be referred.

7. The absence of some restriction upon quacks and venders of quack medicines.

With respect to the last complaint, the necessity for some restrictions upon quacks or quack medicines, the Committee is of opinion, that any future legislative enactments upon that subject, if such were deemed adviseable, should be entirely irrespective of the College of Physicians, and should demand only the interference of the civil magistrate.

As regards the other allegations contained in the petitions, the Committee think that certain changes may be effected with safety, and, in its judgment, with advantage to the College of Physicians; and which will remedy the evils complained of, as far as they relate to the College.

The Committee, fully appreciating the difficulty of the task confided to it, begs to submit to the College the following statement of the alterations which it believes to be desirable at the present time.

RESOLUTIONS OF THE COMMITTEE.

1. That it is expedient that all physicians now practising throughout England and Wales, with a diploma of M.D. obtained from any British University, and who have attained the age of twenty-six years, should be entitled to admission into the order of licentiates of the College, without any examination, but upon the payment of fees hereafter to be determined.

2. In order to do away with the principle of self-election, the licentiates of the College shall henceforth nominate, annually, a certain number from their own body, for election into the fellowship, and from whom the fellows shall select one-half. The nomination to be conducted by ballot, a balloting-paper having been transmitted, on a given day, to each licentiate, whose address appears on the College list. The number of licentiates to be nominated in each year to be determined by the college.

3. That henceforth the licentiates shall, under certain regulations, have access to the library and museum of the College.

4. That the University of London having required for the degree of M.D. a high standard of education, which is, to a great extent, in accordance with the views of the College of Physicians, the College will be ready to admit into the order of licentiates the doctors in medicine of that university, provided that they shall respectively have attained the age of twenty-six years, and that the censors shall have assisted at their medical examinations.

5. That similar or equivalent privileges shall be accorded to the graduates in medicine of Oxford and Cambridge, who have obtained their license to practise, provided those universities shall have adopted a curriculum of medical study equal to that which the College requires.

6. That it is desirable that uniform medical qualifications should be demanded of all candidates for the degree of M.D. in England, Ireland, and Scotland, and that the degree of M.D. so obtained in either country should henceforth confer a right to practise in all, provided the graduate shall have enrolled himself in the College of Physicians of the country where he resides.

7. That doctors in medicine from foreign universities, or from such British universities as shall not assimilate their qualifications for the degree of M.D. to those contemplated in the foregoing resolution, shall be admitted into the order of licentiates upon producing testimonials of having fulfilled the course of medical study now enjoined by the college, and after having undergone the usual examinations by the censors.

8. That the College of Physicians should have only one Board of Examiners and a uniform system of examination for all candidates for their license, and that the order of extra-licentiates should be abolished.

9. That in any new legislative enactments that might be necessary to carry the foregoing resolutions into effect, powers might be vested in visitors appointed by the Crown (or in some other controlling body), to whom all new by-laws of the College of Physicians should be submitted for their approbation.

Lastly, the Committee is of opinion that if the Fellows of the College of Physicians should express their willingness to modify their statutes to meet the wishes of physicians throughout the country, and to facilitate the admission into their body of all duly-educated persons by the altering the mode of election into the fellowship, they would be authorised to claim from the Legislature a confirmation and extension of the jurisdiction of the College, so as to render it effective for the protection of the interests of their branch of the profession throughout England and Wales.

BIOGRAPHICAL SKETCH OF ESQUIROL.

John Stephen Dominic Esquirol was born at Toulouse, in 1772, of a family much esteemed in the town, as well for their private virtues as for the services which they had rendered their fellow-citizens. At the beginning of the Revolution there was a frightful scarcity in France, and the mob of Toulouse was just going to call for the heads of the engrossers, when Esquirol's father, being informed that there was a stock of corn at some distance from the town, ordered it to be brought immediately, and pledged his fortune for the payment. Though he was rich, his fortune was hardly equal to so enormous an expense, and he would have been ruined, to save the lives of his fellow-citizens, if the town had not discharged the debt so nobly contracted by one of its representatives. Such actions could not fail to make a lively impression on the mind of Esquirol, who, though quite young then, already possessed the high moral qualities of which his life was the continued expansion.

Esquirol began his studies at the College *de l'Esquille*, at Toulouse. He then went to the Seminary of St. Sulpice, to attend a course of philosophy; but the government having ordered this establishment to be closed, he returned to Toulouse, where he commenced his medical studies; less, perhaps, in consequence of a decided vocation for the art of healing, than with the view of obtaining the place of *officier de santé* in the army, an employment quite in harmony with the mildness of his character and the habits of his mind. After having served as surgeon in the army of the Pyrenees, he returned to Paris with the intention of continuing his medical studies. Two men, equally celebrated, and equally worthy of their celebrity, filled with ardour for science, and rather competitors for fame than professional rivals, were then lecturing on clinical medicine, and divided between them the pupils of the Parisian school: these were Corvisart and Pinel.

Corvisart, an acute observer, as well as a bold, eloquent, and enthusiastic professor, drew an immense concourse of auditors to the Charité. Pinel, hesitating and timid, not knowing how to lecture formally, but only to chat good-humouredly, was followed in his visits to the Salpêtrière by a number of pupils, who, in zeal and knowledge, were nowise inferior to those who thronged the wards of the Charité. What made Pinel followed were two most valuable qualities; namely, great penetration as a practical physician, and great clearness as a professor. When you heard him discuss a disease, you would have thought that he was reading out of the book of nature. A few clear and simple propositions formed the subject of his lectures, and they were set forth in such a manner, that each hearer comprehended them without difficulty, and retained them with ease. From Corvisart one learned quickly; from Pinel, with accuracy. (*Chez Corvisart on savait vite; chez Pinel, on savait bien.*)

Esquirol attached himself to Pinel. There was such a conformity of character and tastes between the master and the scholar, that their acquaintance once formed, soon changed, on the part of Pinel, into paternal affection; on that of Esquirol, into filial love.

Pinel had struck the fetters off the lunatics in the Bicêtre; he had published his immortal *Traité de la Manie*, and, with the aid of Pussin, who was placed under him as superintendent, he had effected cures, which were the more surprising, as he had to treat none but lunatics supposed to be incurable, and who had already undergone, in vain, the treatment of the Hôtel-Dieu. This was merely physical, and, with the exception of a few modifications, such as is still employed in some of our establishments. The *Nosographie Philosophique* had also appeared; and this work, which has gone through fifteen editions, had immediately become the classic book of students, and even of physicians. Whether Esquirol thought less of the *Nosographie Philosophique* than of the *Traité de la Manie* (in which case he anticipated the judgment which has since been passed on the two works), or whether a secret inclination carried him to the study of mental diseases, he chose the latter subject, and dedicated his whole life to it. Every one knows the rough usage of lunatics before Pinel's time: they were purged, bled, loaded with chains, and confined in dungeons; while others were sent to the gallies, hung, or burned, according to the nature of their delirium, and the countries in which they lived.

In order to cure the mad, Pinel undertook to enlighten persons in their senses, and wrote his treatise on madness. The road being opened, Esquirol entered on it: he attached himself to Pinel, and followed him in his *clinique* among the lunatics at the Salpêtrière, where he collected his first cases. He admired his master's science, but was not dazzled by it. Being gifted with great penetration, a clear judgment, and wonderful activity of mind, Esquirol thought that Pinel's method might be improved, and undertook to do it. To venture to do more and better than Pinel was a great piece of boldness; yet he had this boldness, and Pinel himself applauded it.

Esquirol began by a thesis published in 1810, on "The Passions considered as Causes, Symptoms, and Curative Means of Mental Alienation." This thesis is not less remarkable for the justness of its thoughts than for the propriety and elevation of its style. Esquirol had been struck, not, as a modern says, by the analogies between madness and reason, for they are contraries, but by the points of similarity between the condition of some lunatics and that of persons agitated by strong passions; and from the cases which he had collected on this subject, he had concluded, that madness is often a purely moral disease, and curable chiefly by moral means.

"Do you see," he said, "that man with an inflamed face, convulsed features, eyes red and sparkling? He is meditating some act of vengeance. He is uttering the sharpest and most insulting words: his voice is harsh and threatening; his phrases short, quick, and interrupted. It would seem that the organ of speech is not sufficiently moveable to express the ideas which arise in a disorderly crowd in his imagination, quickened by his wrath."

And in another place:—"Do you see that young man near the woman whom he adores? His eyes are fixed; his face turns pale and red; his respiration is frequent, his words interrupted. Do not his deep sighs, and the irregular and tumultuous pulsations of his heart, betray his passion? The image of her whom he loves pursues him; he no longer sleeps; he forgets to eat, and grows thin. Do not directly oppose his passion, for he is capable of attempting anything to obtain the hand of the woman whom it would be in vain to refuse him. The opposition which he encounters makes his desires more energetic; he knows not the voice of his relations, and misapprehends the counsels of his friends. Wait and hope; time and absence will do what neither advice, authority, nor reason could effect."

"A young Italian woman had gone mad in consequence of extreme vexation. A female friend sang some Italian airs before her, and the patient, who was much agitated and convulsed, became quiet and silent, and seemed to listen. The physician seized on this indication; he caused music to be played in the room next to the patient's, and she recovered her health."

Esquirol always recognized and proclaimed the efficacy of moral agents; and in the whole course of his long practice he employed pharmaceutical remedies only when the aberration of thought was accompanied by a material injury, characterized by some bodily symptom.

Some time after having published his thesis, Esquirol became the assistant of Pinel at the Salpêtrière; at the death of his master he succeeded him, and remained at that establishment until 1825, when he was appointed first physician at Charenton.

During his residence at the Salpètrière, (I say his residence, because he really lived amidst his patients,) Esquirol became a writer for the great *Dictionnaire des Sciences Médicales*, in which he inserted long and really original articles on idiocy, mania, melancholy, monomania, dementia, delirium, hallucinations, and demonomania. The words *idiotie* and *monomanie* are his own, and have become classical.

To undertake to analyse Esquirol's works on madness, would be to undertake the entire history of the disease; as there is not one of the forms which it puts on that Esquirol did not observe and describe. He pointed out first to physicians, and then to magistrates, the existence of homicidal monomania, and thus saved some unfortunates from death and the infamy of the scaffold. The memoirs written by Esquirol on legal medicine are very numerous. They were chiefly on homicidal monomania and moral liberty, and were inserted in the *Annales d'Hygiène Publique et de Médecine Légale*, of which he was one of the founders and most eminent writers.

While he was chief physician to the lunatic and epileptic patients at the Salpêtrière, Esquirol gave clinical lectures on madness, which yearly attracted a great concourse of native and foreign auditors. This instruction, where the cleverness and delicate tact of the professor were mingled with his profound knowledge, formed those physicians, who subsequently, and after having distinguished themselves by their labours in this branch of the art of healing, were placed, (thanks to the credit which Esquirol justly enjoyed,) at the head of great lunatic establishments. In Germany, in Italy, and even in England, the majority of special physicians, those who have made madness the chief object of their studies, consider themselves fortunate in having attended the lectures at the Salpêtrière, and in being called Esquirol's pupils. They are really so, for they have read and reflected on his works, which they have translated into their language, and made the guide of their practice.

Esquirol several times visited all the lunatic asylums in France at his own expense; he described them, had plans of them engraved, and intended to publish them some day, and to set forth in detail what he has but slightly touched on, namely, the best mode of constructing and managing a lunatic asylum. This work we shall never have, as Esquirol did not leave materials sufficiently worked out, to make us certain, when we collect them together, that we have his entire scheme. Yet the asylum which was built under his direction at Ivey-sur-Seine, may make up for his silence to a certain point, for he combined there, as far as he could, all that he judged capable of contributing to the cure of lunatics. The great establishments in France destined for the treatment of lunacy, have been partly constructed in accordance with the advice and plans of Esquirol; and abroad, where his counsels and name were not less venerated than at home, we have seen a sovereign—the King of Sardinia—order a large building, originally constructed as a lunatic asylum, to be turned into barracks, and a new edifice on the plan of the French physician to be built in its stead. Esquirol formed the finest collection in existence of ancient and modern works, French and foreign, on the subject of madness; and he also collected several hundred skulls and casts of heads to assist the study of this disease. It was not for himself, but rather for the advancement of science, that he had collected these valuable materials, for they were at the service of every one who wished to profit by them. To obtain this favour from him, and to be allowed to examine his MSS., it was by no means necessary to adopt his doctrines, or see as he saw. With him, every one enjoyed perfect liberty; and, if he esteemed your character, whether you were his pupil or not, obliged to him or not, you might, without fear of displeasing him, discuss a question with him, oppose your ideas to his, and if you were in the right, he yielded with a good grace, for his self-love did not suffer in the least by it.

Though religious by nature, and a devoted partisan of the old monarchical creed, he was far from requiring any one to approve of his principles, far less to conform to his opinions. All that he asked from others was tolerance, and he every day afforded the example of this virtue. Some of his old friends spoke and thought like him; the younger ones all belonged to a party contrary to him, and yet he loved them all with the tenderness of a father. He had himself made the remark, that those in whom he had been most interested, whom he had invited to his house and admitted to his intimacy, far from sharing his opinions, had almost always attacked them. Thus he was never surrounded by flatterers, a very rare circumstance in the high position which he occupied, and which of itself would suffice for his panegyric.

Too timid to make his way in the world, as the phrase is, he owed his success to his merit alone. He neither intrigued nor caballed, he felt no jealous rivalry, nor was he in the least wretched, when some competitor gained the day over him. He sometimes saw enemies attack him with animosity, and he pardoned them; he saw pupils whom he had loved turn against him, and he did not love them the less. One day when I was complaining to him of the attacks against me, and let him see how much I suffered from the whispered and printed calumnies to which I was exposed, he smiled, and consoled me by reminding me of his own history. When he published his first works, he had been violently attacked; improper and abusive appellations had been addressed to him; he bore them without saying a word, and if he remembered them, it was not to accuse their authors, but to give me an example useful to my repose.

The timidity of Esquirol never degenerated into weakness, and he showed courage when duty or honour required it. At one time he defended a man suspected of aristocratic principles, and on his trial before the revolutionary tribunal at Narbonne. He spoke from his heart, his voice was warm, his look animated, and he astonished by his boldness. The audience was moved, and the relenting judges consented to be just for the nonce. At another time, when he had become a man of influence, he prevented the suppression of the college of Sorèze; it was tainted with liberalism, and he was quite monarchical; but he was tolerant, and desired to convince, not to force. On another occasion he opposed the dismissal of a Montpellier professor accused of imparting revolutionary principles to his pupils, and wished the matter to be left to the cognizance of the ordinary tribunals. During the revolution of July, his house was the asylum of M. de Montbel, who was then a minister.

When Esquirol came to Paris, he was without fortune or patronage, and he lived for several years in a state approaching to distress. He liked to recal this epoch of his life to those pupils who were in a similar situation, in order to give them courage and the hope of better times.

A week before his death, and when already labouring under a pulmonary gangrene which had hindered him from seeing his patients at Charenton that day, he chose to be present at a sitting of the Council of Health, of which he was vice-president. He returned very ill, feverish, and spitting blood. He went to bed, and the pulmonary affection was of itself not serious; but he felt so weak, that from that moment, MM. Louis and Cayol, who were called in, thought his life in danger. Esquirol thought so too, and whatever trouble was taken to deceive him on this point, he prepared to die. Without having experienced any but physical sufferings, as calm in mind as when in his best health, he foresaw the day and hour of his death, prepared for it with the faith of a Christian, and expired tranquilly and without a struggle, on the 12th of December 1840, in the 68th year of his age. Esquirol was one of the most eminent physicians of our era. Henceforth his name belongs to history, and it will not perish.*

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* Abridged from a life by M. Leuret, in the *Gazette Médicale*, Jan. 2, 1841.

ROYAL MEDICAL AND CHIRURGICAL SOCIETY.

Jan. 26, 1841.

Sir B. C. Brodie, Bart., in the Chair.

Observations on Vaccination and Small-pox, more especially with reference to the Theory of Vaccine Influence, and the relation subsisting between the cicatrix and the character of the consecutive variola. By Geo. Gregory, M.D., Fellow of the Royal College of Physicians, and Physician to the Small-pox and Vaccination Hospital, St. Pancras. Communicated by Mr. Arnott.

The observations of the author, in the present paper, are intended to point out, first, the alarming increase of small-pox in the metropolis, as shewn by the books of the Small-pox Hospital; and, secondly, the insufficiency of the appearance of the cicatrix of the former vaccination as a test of the degree of protection afforded by the process. Upon the first point he adduces the fact, that the admissions in the first three-quarters of 1840 only amounted to 142, beirg at the rate of 16 *per mensem;* while in the twenty-five days immediately preceding the reading of the paper, they amounted to 93, being nearly at the rate of 4 *per diem*—a greater number than was ever admitted in one month since the establishment of the hospital in 1746. Of 316 cases admitted in 1840, 194 had not been vaccinated; of whom 87 died of 45 per cent.; 120 had been vaccinated, of whom only 8 died, being at the rate of 7 per cent. The remaining two had had the small-pox previously. Of the 316 patients, 47 were under five years of age, of whom 28 died; 45 between 5 and 15, of whom 9 died; 224 were adults, of whom 58 died. The total mortality 95, or 30 per cent. on the pass admissions.

With reference to the second point, the author entered at some length into an explanation of the causes by which the many observed varieties in the appearance of the cicatrices may be explained, and presented the society with two series of well-marked cases, in the first of which severe small-pox occurred in cases presenting perfectly normal cicatrices; whilst in the second the opposite anomaly presented itself, the lightest and truly varicelloid eruptions co-existing with small and very imperfect cicatrices. In the conclusion of his paper the author expresses doubt of the conclusion, seemingly derived from the late experiments of Mr. Ceely, of Aylesbury, of the identity of the vaccine and variolous poisons.

Dr. Webster said he thought it might be doubted, notwithstanding what Dr. Gregory had adduced, whether the small-pox of the present epidemic was really more general or more fatal than that of 1838. He believed it was not so much so; for, on referring to the Registrar-General's Report and the weekly list of deaths, he found that the number of deaths from small-pox in 1838 was considerably greater than any that had occurred since. He thought there were circumstances that might render the results of the statistics of the Small Pox Hospital different from those of the metropolis at large; and that, however great the number received into the hospital, the epidemic was now generally on the decline, and not so severe as that of 1838.

Dr. Gregory said that the number of cases of small-pox now occurring and proving fatal, ought not, in any comparison of this epidemic and that of 1838, to be compared with the numbers for the whole of that epidemic, but with those for the early part of it. The epidemic of 1838 commenced in the autumn of 1837, just as the present did in October, 1840; the former reached its extreme height in May, 1838, in accordance with the general law according to which epidemics of small-pox take about from four to six months to attain their acmé, and then about the same time again in declining. He therefore anticipated, and others agreed with him in the calculation, that the present epidemic would go on increasing till May or June, and then again begin to decline. His conclusion as to its severity was drawn from the fact that the numbers admitted into the hospital were increasing weekly, and that in the last week they had exceeded the greatest number admitted for very many years.

The President asked whether any comparison had been made of the number of cases of small-pox that occurred in the three last months of last year, and in the three corresponding months of the year 1837.

Dr. Gregory replied that he had unfortunately been too much occupied at the hospital during the last month to make the researches necessary to establish this point; but his impression from memory was, that the number during the last year was somewhat less than in 1837.

Dr. Webster said that the weekly returns proved that the number was less: there was but one week in the last year in which the deaths from small-pox were more numerous than in 1837, and that was the last week in the year—a circumstance which might fairly be attributed to deaths which had been omitted in previous weeks, being put down to this week, in closing the year's accounts. That there was some error of this kind was rendered the more probable by the apparently increased mortality of the last week of the year being not confined to small-pox, but extending over many other diseases, so that the total mortality in that week was stated to be considerably greater than in either the preceding or the succeeding week. The weekly bills now published showed a decreasing mortality from small-pox, and he could not help thinking that these statistics were more to be relied on than the fact of the increasing number of admissions into the Small-Pox Hospital. It was very probable that the admirable arrangement of that institution, and the zeal and ability with which it was superintended by Dr. Gregory, would have a great effect in attracting patients thither; every one seized with small-pox would be anxious to obtain admission there, where he was sure to receive the best care and attention that could be afforded him.

Mr. Arnott begged to ask Dr. Gregory his opinion as to the age at which vaccination being performed was most likely to secure permanent protection. It was stated in the paper that only one case had been met with in which small-pox occurred after vaccination before the seventh year, and that was in a child that had been vaccinated at two months old. He had himself lately witnessed a case where small-pox occurred in a still younger child, vaccinated in the second month. He was, therefore, anxious to know whether it was likely that vaccination, performed at so young an age, afforded a less chance of success than that done at a later period. It was well known that children at the breast were not so liable to the reception of morbid poisons, such as those of measles, scarlet fever, &c. as older children; and in general the younger the child was, the less likely was it to be infected by these diseases. Did this peculiarity extend also to the vaccine disease?

Dr. Gregory said, that he believed the disposition to receive the vaccine virus did not depend on any peculiarity in the constitution of the young child, but on the condition of its tissues, which rendered it difficult to insert the virus fairly. In the first month or two, before the child becomes plump, it is extremely difficult to insert the virus so that its full effect should be produced; but, after this time, the operation was much more easy, and, in the majority of children, could scarcely fail of success. He should be glad to hear whether the experience of those around him agreed in this respect with his; in particular he would ask Mr. Ceely, of Aylesbury, what his opinion was as to the best time for performing vaccination.

Mr. Ceely said his experience agreed on the whole with that of Dr. Gregory. He did not think there was any thing peculiar in the constitution of the very young child that would prevent the vaccine disease going through its regular course. The condition of the skin in the first two months was an obstacle only to that mode of vaccination which is effected by the insertion of points; he believed that if a few slight scratches were made carefully with the lancet, the operation would succeed as well, and the disease would pass through as regular a course, in children of a week or two old, as in those of older growth.

The President asked whether, in the cases of small-pox that had occurred after vaccination at the Small-Pox Hospital, it had been determined at what age the persons so affected had been vaccinated.

Mr. Arnott said that that was the pith of the question which he had wished to have answered. It was not asked whether a child two months old, being vaccinated, would have the vaccine disease fully developed and carried through its usual course, but whether, having gone through that course, its protective influence would be as great as it would have been if performed at a later period.

Dr. Gregory replied, it was impossible to answer the question. The greater number of patients admitted into the hospital were adults, whose parents were dead, or absent; these, therefore, could only know what their parents had told them, namely, that they were vaccinated when they were young; they could not be expected to tell the exact month of the operation: and even when the parents were still alive, he had found it impossible to arrive at any accurate information. He had over and over again asked them—when was this child vaccinated? Oh! they would say, when he was very young. But how young? two, six, or twelve months? Well, they commonly answered, somewhere about that age, sir. He could never meet with parents who could tell the age at which each particular child was vaccinated. He had lately lost a case at the hospital; it was that of one of a family of ten children, who had all been vaccinated at Aylesbury by the same practitioner. But the parents could not, even upon careful questioning, remember the age at which this particular child had been vaccinated; they only knew that they were all regularly sent, and that the sum of one pound one (not eighteenpence, but one pound one) was regularly paid. He had, therefore, been quite unable to make out what was the relative value of the operation performed in different months of early life. He believed that its success was best secured by choosing that period when the course of the disease was least likely to be interfered with. Of all causes of interference that which was most to be avoided was teething; and it was, therefore, advisable that the operation should be done before the sixth month, or (as in some children this process commenced very early) before the fifth month. And again, as in the early months the tissues were not in the state best adapted for the reception of the virus, he thought that the fourth month was that which offered the best prospect of permanent success, and which should be generally adopted. Difficult as it was to arrive at any positive conclusions, yet he thought he had of late been able to make out that, when vaccination was performed later than the end of the second year, or, perhaps, he might say, in adults, the probability of permanent security was not so great as when it was done in the earlier periods of life. He could, however, only throw this out as a suggestion requiring many more facts for its full establishment.

Dr. Webster said he should be glad to hear from Dr. Gregory whether his faith in the power of vaccination had at all decreased. It was evident that a considerable number of cases of small-pox after vaccination had occurred at the hospital, and among them many deaths; he could not, for his own part, but suspect that, in these cases, the patients were mistaken as to the operation having been performed, or else that it had been ill performed.

Dr. Gregory said the best evidence he could give of his faith in the power of vaccination was the fact stated in the paper, that of those who had small-pox, without being vaccinated, forty-five in one hundred died; while of those who had it after vaccination, with all the doubts and chances connected with the mode in which the operation was performed, only seven per cent. died. He would take this opportunity of asking the members of the Society, and especially Mr. Ceely, what had been the result of their experience in the use of the variolo-vaccine matter; he meant the fluid which had been obtained by that gentleman by inoculating the cow with variolous matter, and thus generating, as was supposed—though, he thought, on evidence not yet sufficient—the true vaccine matter. His own experience of it had of late been rendered extensive by his having had to attend to the vaccination of the patients during the illness of the surgeon. He believed that the variolo-vaccine produced effects by which it might always be distinguished from the old vaccine; the areola was always of a remarkably full red, and in the centre of the vesicle there was always a small green point. Mr. Ceely had described it as like the emerald set in the pearl; the old vaccine vesicle was likened to the pearl set in the rose; but this resembled the emerald in the pearl with the rose around it. By these characters he was sure he could always tell the effects of the variolo-vaccine; and, in addition to these, he had observed that its effects, both locally, in the extent and intensity of the areola, and on the constitution, were more severe than those of the old lymph. He thought, therefore, that we ought to hesitate before admitting the exact identity of the variolo-vaccine and the vaccine.

Mr. Ceely said that, in his own practice, he had found no constant difference between the effects of the variolo-vaccine and the old vaccine matter; nor did he believe that the differences, when they did occur, depended on any thing but the characters of the patients. He had been amused by the different accounts sent to him by the various practitioners whom he had supplied with his new lymph: some wrote to him that they could discern no difference whatever between the effects of the new and old matter; others, that they found the new lymph more active and violent in its effects; while others again thought its action even milder. He had no doubt that all were right; and that the differences each had met with depended on the peculiarity of the circumstances in which they had used it, and of the soil in which they had planted it. He believed that if a diversity of patients were vaccinated with it, no constant peculiarity would be observed. Dr. Gregory's patients were generally all of one class, and all placed in nearly similar circumstances; and hence the regularity of the effects of the virus upon them. The popular opinion in his neighbourhood, where he had used the new lymph for the last two years, was, that it was rather more active than that which had been used for many years; and probably this was, to some extent, true. But the difference was not to be attributed to any other peculiarity in the lymph than its being new; for it was constantly found that the more recently lymph has been taken from the cow the more energetic is its action, and this whether it be the common vaccine or the variolo-vaccine.

A member having asked Dr. Gregory his opinion respecting the value of revaccination, and the age at which the second operation had better be performed, he replied that it was only within the last few years that he had had much experience in the practice; for that till lately it had been carried on only in the higher ranks of society, and was scarcely ever resorted to among the class from whom the patients of the Small-Pox Hospital were drawn. In late years, however, he had seen much of it, and had seen several cases (some of which were related in his paper) in which small-pox had occurred after revaccination. The case to which he had already alluded presented some points of interest in reference to revaccination. Ten children in the same family had all been vaccinated in their infancy by the same surgeon, and as nearly as possible under the same circumstances. One of them had lately died of small-pox. Eight of the remaining nine were at once revaccinated: in half, the vaccine disorder passed through all its stages as regularly and fully as if the operation had never been performed before; in he other half nothing but an irritating pimple as produced. There was no difference re-rable to age and distance of time from the ormer vaccinations in these cases. Some of e youngest children had the disease strongly arked, and some of the eldest; in others f each class it produced scarcely any effect. Ie thought there was something yet to be ade out respecting that condition which enders an individual incapable of receiving the benefit of vaccination; and till this was done he could only say, in reference to the operation of revaccination, that it should be done empirically. It was not improbable that by it the individual obtained a better chance of immunity from small-pox, but, whether he really did so or not, it was impossible at present to decide unequivocally. With reference to what had fallen from Mr. Ceely concerning the irregularity of the effects of the variolo vaccine, he would point out this fact as an evidence of its not being identical with the old vaccine. In the latter there was no irregularity; in the patients vaccinated with it at the Hospital on Mondays and Tuesdays, he always felt sure of the kind of vesicles which they would return with on the Mondays and Tuesdays following; but in those vaccinated on Thursdays with the variolo-vaccine, there was no such regularity; matter used on Thursday, the 1st, would produce, perhaps, a severe form; the matter taken from this on the 8th, would generate a mild disease; and this last again, on the 15th, would be followed by a severe one. In all this the variolo-vaccine differed from vaccine, and resembled variolous matter, of which it was well known that there was no certainty whether the matter from a case of mild disease would produce a disease of like degree. Only lately he had seen a case in which inoculation from the mildest varioloid vesicles had produced the most severe confluent variola. From all this, therefore, he could not but repeat that it would be unwise to assume the identity of the variolo-vaccine and the vaccine before it had been more completely established by a number of carefully ascertained facts.

On Gouty Concretions; with a New Method of Treatment. By ALEXANDER URE, Esq.; communicated by the President.

The author's intention, in the few remarks contained in this paper, is to introduce to the profession a remedy which he believes to be likely to prevent the formation of tophous concretions in gouty subjects. The remedy in question is benzoic acid, administered in doses of one scruple an hour after a meal. "In the course of a couple of hours (as the author has found by frequent experiments made upon himself and others), the urine voided, amounting to five or six ounces, will be found, on adding a small quantity of muriatic acid, to yield a copious precipitate of beautiful rose-pink acicular crystals, which weigh, after being allowed to settle for a day, about fifteen grains." The body thus produced by the agency of vital chemistry is hippuric acid, and is found to have taken the place of uric acid in the urine, more of the latter being discoverable. By thus substituting hippurate of soda, a salt of easy solubility, for the very sparingly soluble urate of that alkali, the author conceives that the formation of the tophous concretions may be altogether prevented.

The brief discussion which followed the reading of this paper elicited nothing of interest. The meeting, which was a very full one, adjourned at half-past ten o'clock.

CASES OF
DISLOCATIONS AND FRACTURES
IN THE CERVICAL PART OF THE VERTEBRAL COLUMN.

By Dr. Schuh, of Vienna.

Case I.—F. A., æt. 24, of a strong constitution, was sitting one evening at his work, when a companion sitting behind suddenly called out so as to frighten him; he looked round quickly, and at the same instant felt a crack in his neck, and could not move his head back again. On the next day when he was brought to the hospital, he presented the following symptoms:—The face was turgid; the head twisted to the right side, and approximated to the right shoulder; the left side of the neck somewhat cracked, the right rather hollowed; pain increased by pressure at the left side of the neck, in the part corresponding to the third, fourth, and fifth vertebræ. Every attempt to give the head and neck another direction was useless and painful: the direction of the upper spinous process could not be accurately followed by the finger; the muscles of the neck were by no means morbidly tense; the patient complained of weakness of the right upper extremity, and could raise it only with difficulty; he could also not press with the fingers of his right hand nearly so forcibly as he could with those of the left. The other functions were normal.

I at once made an attempt at reduction, by drawing the head straight upwards by the chin and the occiput, and by fixing the patient's shoulder as he sat on the ground; but in vain. In the evening the same attempt was repeated, but again without success: neither this nor the first gave him any pain. Leeches and cold lotions were applied.

On the second day after the accident the patient complained of an increase of weakness in the right arm, and a sensation as if it were asleep. To exert more force, I now in some measure altered my mode of attempting reduction. I made the patient lie on his back in bed; his shoulders were fixed by two linen towels passed round them, an extension was made with a handkerchief, passed under the chin, while an assistant held up the occiput in both his hands. After a gradually increased, and at last considerable extension had been made, both the patient and the assistant felt a crack or snip in the neck; and when the extension was gradually remitted and had ceased, the head and neck stood in their right position, and could be moved to either side, though not without some pain on the left side of the neck. The weakness of the right arm remained.

The day after the right arm was still of but little use. On the next day giddiness and confusion of the senses came on, with a frequent pulse and a tendency to sleep. Ten ounces of blood were drawn: the patient during the operation became faint and was convulsed; but afterwards lost the giddiness and rapidity of pulse, and gained more power over his arm. On the following days he continued to improve, and on the ninth day from the accident was perfectly recovered.

This case, the author remarks, seemed to merit publication, because, like those of Desault *(Boyer*, T. iv. 103.) and of Suffert *(Rust's Magazin*, Bd. xxxiv. S. 442) it was produced merely by the sudden rotation of the head, and thus had its symptoms uncomplicated, so as to shew clearly what are the signs of a simple dislocation of an oblique articular process, and whether the stretching of the spinal cord in an attempt at reduction be a matter of indifference or not.—*Oesterreich. Jahrb.* Bd. xxx. St. iv.

BOOKS RECEIVED.

Mr. Bingham's Observations on the Religious Delusions of Insane Persons, &c. &c.

Mr. Tuson on the Cause and Treatment of Curvature of the Spine.

Dr. A. T. Thomson on the Domestic Management of the Sick Room.

The Library of Medicine, Vol. VI. (Midwifery).

Mr. Yearsley's Contributions to Aural Surgery, No. 3.

Mr. Ellis's Demonstrations of Anatomy, complete in 1 vol. Part 2.

Mr. F. W. Grant Calder's Practical Hints on the Cure of Squinting by Operation.

Dr. Rudolph Wagner's Elements of Physiology for the Use of Students, translated by Robert Willis, M.D. Part 1—On Generation.

Second Annual Report of the Northampton General Lunatic Asylum.

ROYAL COLLEGE OF SURGEONS.

LIST OF GENTLEMEN ADMITTED MEMBERS.

Friday, Jan. 22, 1841.

J. A. Stace.—C. B. Craske.—G. Seymour.—M. Greene.—H. Pearson.—J. W. Perrin.

A TABLE OF MORTALITY FOR THE METROPOLIS,

Shewing the Number of Deaths from all Causes registered in the Week, ending Saturday, the 23d January, 1841.

Small Pox	86
Measles	14
Scarlatina	18
Hooping Cough	36
Croup	10
Thrush	3
Diarrhœa	2
Dysentery	1
Cholera	0
Influenza	2
Typhus	18
Erysipelas	9
Syphilis	1
Hydrophobia	0
Diseases of the Brain, Nerves, and Senses	135
Diseases of the Lungs, and other Organs of Respiration	422
Diseases of the Heart and Blood-vessels	16
Diseases of the Stomach, Liver, and other Organs of Digestion	68
Diseases of the Kidneys, &c.	6
Childbed	8
Ovarian Dropsy	1
Diseases of Uterus, &c	4
Rheumatism	1
Diseases of Joints, &c.	4
Ulcer	0
Fistula	0
Diseases of Skin, &c.	0
Diseases of Uncertain Seat	123
Old Age or Natural Decay	113
Deaths by Violence, Privation, or Intemperance	21
Causes not specified	7
Deaths from all Causes	1129

METEOROLOGICAL JOURNAL.

Kept at Edmonton, *Latitude* 51° 37 32" *N. Longitude* 0° 3' 51" *W. of Greenwich.*

Jan. 1841.	Thermometer			Barometer.		
Wednesday 27	from 42	to	51	29·93	to	30·11
Thursday . 28	28		42	30·14		30·20
Friday . . 29	32		43	30·09		30·12
Saturday . 30	31		43	30·14		Stat.
Sunday . . 31	36		41	30·11		30·21
Feb.						
Monday . . 1	25		33	30·15		30·21
Tuesday . 2	20		29	29·99		29·

Wind, West on the 27th; S.W. on the 28th; North on the 29th; S.W. on the 30th; S.E. and East on the 31st ult.; N.E. on the 1st inst. and following day.

On the 27th, morning overcast, otherwise clear. The 28th, morning clear, afternoon overcast, evening hazy. The 29th, evening overcast, otherwise clear. The 30th, morning overcast, afternoon foggy, evening cloudy, with small rain. The 31st ult. overcast, rain in the morning, and snow in the afternoon and evening. The 1st inst. overcast, snowing frequently during the day. The 2nd, afternoon clear, otherwise cloudy, with snow in the morning and evening.

Rain and melted snow, ·14 of an inch.

Charles Henry Adams.

Wilson & Ogilvy, 57, Skinner Street, London.

THE

LONDON MEDICAL GAZETTE,

BEING A

WEEKLY JOURNAL

OF

Medicine and the Collateral Sciences.

FRIDAY, FEBRUARY 12, 1841.

LECTURES
ON THE
PRINCIPLES AND PRACTICE OF PHYSIC,

Delivered at King's College, London,

BY DR. WATSON.

LECTURE XXI.

Diseases of the Brain and nervous system. Difficulties of the subject. Short review of some points in the physiology of the brain and nerves. Peculiarity of the cerebral circulation. Pressure.

Diseases of the brain and nerves.—Having considered some of the most important disorders of the eye, because they afforded me the means of illustrating many of the doctrines and principles which I had previously endeavoured to lay before you, of *general pathology,* I go next to the diseases of that portion of the body, which, though it includes many distinct parts, is called, collectively, the head. I pass over the maladies to which the integuments of the head are liable, because they will be treated of more naturally and conveniently among the cutaneous disorders; and I come at once upon one of the most interesting, and at the same time most difficult and obscure subjects of special pathology—that which embraces the diseases of the brain and nerves. Though it will be a slight departure from the plan I have proposed of taking diseases as they affect different parts of the body from the head downwards in succession, I shall speak of the diseases of the spinal cord, and of the nervous system generally, in connexion with those of the brain. To disunite them would neither be easy nor useful.

Difficulties of the subject.—The study of the maladies and disordered conditions of the brain and nervous system, is surrounded with peculiar difficulties: and, accordingly, our knowledge of these diseases is less precise than of the diseases of most other parts of the body.

1. One source of difficulty lies in the circumstance that the structure of the nervous system has no perceptible or understood connexion with its functions. We do not discover in the mechanism of this system that adaptation of means to an end which is so conspicuous in many other parts of the body: and consequently, though such adaptation doubtless exists, we are not able to trace the reason or the manner of its interruption. We find in the lungs an apparatus of tubes and cells fitted for the reception of air, upon the expansion of the chest by the contraction of certain muscles; of which muscles also we can see and understand the action. If we meet with any obstruction of those tubes, or any obvious impediment to the play of those muscles, we perceive at once how and why the function of respiration is deranged. But no alterations that become visible, after death, in the brain or spinal marrow, afford us any explanation of the interruption of their proper functions; which are, in three words, *sensation, thought,* and *voluntary motion.* An apoplectic cell has no relation, direct or inverse, that we are capable of appreciating, with a sentiment; nor a distended lateral ventricle with the exercise of the will. The morbid anatomy does not in any degree elucidate the disorder, simply because the natural structure throws no light upon the healthy office of the parts concerned.

2. It is a farther source of difficulty, that physiologists have not yet been able to determine, with any thing like precision or certainty, what share the several parts of the brain and spinal cord have in regulating, respectively, the functions which all physiologists acknowledge to belong to the nervous system in the aggregate. There are many and convincing reasons, for believing that the

brain is a complex organ; but we can seldom put our finger upon this or that portion of the nervous matter which composes it, and say, *here* resides the influence that governs this or that particular function.

3. Again, the brain and cranio-spinal axis are so encased by their bony coverings, that, in the living body, we are unable to ascertain their physical conditions by means of any of our senses. Of many parts of the frame we ascertain the state by the sense of sight; and of many parts that we cannot see, we still may recognize the changes by the faculty of touch, or by the ear. The brain and spinal cord we can neither see, nor hear, nor handle.

4. Besides these obstacles to the acquisition of information, by the exercise of our senses, concerning the organs affected; the very disturbance of the functions of the brain cuts us off, in many cases, from that kind of information which we might otherwise derive from the statements of the patient himself.

5. There is a still greater cause of perplexity, with which we have to contend. The very same symptoms accompany alterations of the brain apparently of a very different, nay of the most opposite kind: and on the other hand, changes of structure, which, as far as we can perceive, are absolutely identical in their nature, are associated, in different cases, with totally different symptoms: and more frequently than not, nervous diseases are attended with *no* alterations of structure, appreciable by our senses.

6. And lastly, we are perpetually asking ourselves, when we find the proper functions of the nervous system disordered,—is this disorder the result of disease in the nervous matter itself? or is it merely sympathetic of disease in other parts? for there are few diseases of any kind which do not, in some degree, modify or disturb the due exercise of the offices of the brain and nerves: and it is very difficult often, and sometimes it is impossible, to determine whether and how far the disturbance is primary or secondary.

With all its difficulties, however, the pathology of the brain and nerves is always full of interest. How can it be otherwise, when we reflect that the nervous system is the medium through which we hold communion with the world around us; the stage upon which all the phænomena of animal life are transacted; the instrument of the mind?

And with all its difficulties, there is also a good deal, in the pathology of the brain and nerves, that is fairly made out, and well understood; and we are at present in the right way for advancing our knowledge of this intricate and mysterious subject, by that careful collection of facts, and rigid induction of particulars, that will lead, at length, to a safe and useful generalization.

I shall endeavour to point out to you what is *known* of the morbid conditions of the nervous system; I shall also state the conjectures and probabilities by which our judgment and practice must be guided, when absolute certainty is unattainable. With mere speculative questions, that have no practical bearing, I shall meddle as little as I can.

Physiology of the subject.—Our knowledge, I say, of the exact functions of the different parts of the nervous apparatus, is scanty. Some certainties, however, we possess; and some strong probabilities which almost amount to certainties. Without first expounding my creed upon these matters, it would be impossible for me to explain, as it would be for you to understand, the notions I entertain respecting many of the diseases of the brain and nerves.

Omitting the sympathetic nerve and its ramifications, (for we know but little of its office, and still less of its disorders), the nervous system is made up of certain masses of nervous matter, called the *nervous centres*; and of *nerves* therewith connected.

The nervous centres consist of the cerebrum and cerebellum, the medulla oblongata and the medulla spinalis. I shall include the cerebral hemispheres, and the lobes of the cerebellum, under the common term, the *brain*. So I shall speak of the oblong and of the spinal marrow, in the single phrase, the *spinal cord*, or the *cranio-spinal axis*: their endowments appearing to differ more in degree than in kind.

I adopt the belief that the grey (which are much the more vascular) portions of these nervous centres, form the part in which their peculiar powers reside, or are generated; and that their white or fibrous portions are, like the white and fibrous nerves, mere conductors of the nervous influence.

I incline also to the opinion (recollect, if you please, that I do not press these opinions of mine upon you as being necessarily correct), that the influence which originates in the grey matter, and is transmitted by the white, will at last be found to consist in, or to be closely connected with, some modification of electricity. We know that some of the effects of this influence may be very exactly imitated, in animals recently dead, by galvanism.

The functions of the brain and nerves are sensation, thought, volition, and the power of originating motion. There may be others; but these four are all that we need, at present, concern ourselves with.

Now it is a part of my creed that the faculties of sensation, of thought, and of the will, belong to the brain: perhaps to the cerebrum alone. The precise office of the cerebellum is involved in much obscurity and dispute. Some of the opinions that have been formed respecting it, I shall notice hereafter.

The chief grounds for believing that the brain proper is, exclusively, the instrument of the mind, are these:—

1. Because this portion of the nervous centres is superadded to the cranio-spinal axis, in the greatest bulk and most complicated form, in man: and after him, in those of the inferior animals which shew the largest share of reason.

2. Because, in inferior animals which evince a certain amount of mental endowment, all manifestation of intellect ceases upon the gentle and gradual removal of the cerebrum and cerebellum: the animals continuing to live, for a long time, notwithstanding this mutilation.

Again, it forms a part of my creed on these subjects that the motive power resides in the spinal cord.

The muscles furnish the instruments of motion.

Now there is a certain class of muscles which contract without our willing their contraction; and generally without our being conscious that they are contracting. Such are the heart, the muscular fibres of the alimentary canal, and of the bladder. These are, therefore, called involuntary muscles.

There is another large class of muscles, which obey the bidding of the will, and serve the purposes of prehension, locomotion, and bodily effort. These are considered and called voluntary muscles.

There is still another distinct set of muscles, of which the habitual action is involuntary, yet which submit also to the interposing control of the will. You will call to mind at once the muscles of respiration, which act while we are asleep, or otherwise unconscious; and the sphincters, which regulate the entrances and outlets of the body. Here, I say, the habit is involuntary, but the occasional action is prompted and governed by volition. But sometimes the involuntary action rebels against the willed action, and overcomes it. The muscle contracts in spite of the will.

Nay, those muscles which, ordinarily, move only in obedience to volition, do sometimes, under the influence of strong emotion, or of disease, contract independently of any effort of the will, and even in opposition to, and defiance of, the voluntary power.

Under certain circumstances the limbs move with much briskness and force in decapitated animals, in which sensation and volition are extinct. Some physiologists hold, indeed, that sensation and volition are properties of the spinal cord; and they would object to these cases, that no one is warranted in affirming the movements in question to be independent of the will. The animal has no means of informing us whether it feels or not, any more than the human head that has been severed by the axe or the guillotine.

This point, however, has been settled by certain phænomena which are observed to occur, in the human body, under disease. Limbs completely palsied as to voluntary motion, and quite dead as to sensation, do yet, under certain conditions, contract and move when the integuments are pinched; the rational patient not feeling the pinch, and not being conscious of the movements.

Whence does the impulse that leads to motion in these cases proceed—how is the motive power awakened?

The answer to this physiological question has a most important bearing upon the pathology of the nervous system.

It is no part of my purpose to enter into any history of the steps by which this curious problem has been worked out. Its solution is an achievement of our own time; and I may add, of our own country. I profess no more than to sketch, in mere outline, the leading facts that have been ascertained; yet I must, in passing, pay the tribute due to one indefatigable labourer in this department of science, whose sagacity has enabled him to seize the clue, and in a great measure to unfold the mazes, of the labyrinth in which this part of the physiology of the nervous system was so long entangled. Dim and uncertain glimmerings of the truth appear in the writings of bygone authors, but it was never clearly discerned, and plainly stated, and successfully applied to the elucidation of a large class of disorders, until the publication, in 1832 or 1833, of Dr. Marshall Hall's ingenious and most interesting researches into "the functions of the medulla oblongata and spinal cord." Similar views appear to have suggested themselves, about the same time, to Professor Müller of Berlin. I must recommend you to study the works of these authors; and I may also point out, as fit writings for your perusal (since the doctrines I am now speaking of are comparatively new), Dr. Grainger's *Observations on the Structure and Functions of the Spinal Cord;* Dr. Carpenter's *Inaugural Dissertation on the Physiological Inferences to be deduced from the Structure of the Nervous System in the invertebrated classes of animals;* and a very able paper on the Pathology of the Spinal Cord, by Dr. William Budd, in the 22d volume of the *Medico-Chirurgical Transactions.*

If, on the other hand, you wish to see how nearly the idea, which has been so happily simplified into an intelligible principle by Dr. Hall, was reached by earlier observers, you may consult the writings of Dr. Whytt, upon nervous diseases.

What, then, are the main facts and doctrines, respecting this intricate subject, which modern research has made clearer?

It seems ascertained, that movements of those muscles which acknowledge the empire of the will, depend essentially upon some momentary change in the condition of the spinal cord. This change (whatever may be its nature) is capable of being affected in three several ways.

First, volition, originating in the brain, may send down an influence, which travels with electrical rapidity to the spinal cord; whence, the requisite change having been instantly produced, the motive influence passes, with proportional speed, along the nerves which connect the cord with the muscles to be moved.

Secondly, the change productive of motion may be wrought in the cord, whether the brain be attached to it or not, by mechanical, chemical, or electrical agencies, operating directly upon the cord itself.

Thirdly, the change productive of motion may be wrought in the cord, by an influence carried to the cord, not from the brain, but from the extremities of nerves distributed upon the internal and external surfaces ofthe body.

The action of this nervous circle, whereby, I say, an influence is first carried from the surfaces of the body, along nerves, to the spinal cord—whence again an influence is transmitted, or *reflected*, as it were, to certain muscles along certain other nerves—has been called by Dr. Hall the *reflex function* of the spinal cord. The apparatus subservient to this function is named by him the *excito-motory system;* the nerves which carry the impression *to* the cord are *incident* or *excitor* nerves; those which convey the motive impulse *from* the cord, *reflex* or *motor* nerves. Mr. Carpenter's terms (which I like better, except for their similarity in sound) are *afferent* and *efferent* nerves.

Dr. Grainger believes that physiology indicates, and anatomy can exhibit, *four* sets of fibres belonging to the nerves and the nervous centres. *Sensiferous*, and *volition* nerves, connected with the grey substance of the cerebrum, and subordinate to the exercise of feeling and the will; and *incident* and *reflex* nerves, connected with the grey matter of the cord, and belonging to the excito-motory system.

Whether this be the true state of the case, or whether the efferent fibres be the same, while the afferent fibres are different; the latter coming to the spinal marrow both from the brain and from the various surfaces, just as two trains may arrive at Euston Square ultimately by the same rail, although the one starts at Derby and the other at Birmingham; or (which is perhaps the better illustration) just as, in some houses, the same bell is made to ring in the servants' hall by pulling, indifferently, the dining room or the drawing room rope:—which of these two hypotheses is the more correct, I am not competent to determine.

This reflex action, independent of the will, and although attended often by consciousness and sensation, yet often also exercised when there is neither, governs the orifices by which air and food are introduced, and excrements are voided. The infant breathes and sucks by it; the adult uses his will for bringing nutriment into his mouth; in both, the act of deglutition, after the food has reached a certain point, is involuntary. The expulsion of the fæces, the urine, the semen, and the fœtus, is regulated by the same function. Nevertheless, most of these muscular acts are capable of being moderated and directed by volition. The reflex power, on the other hand, extends, both in health and in disease, to the entire system of the strictly voluntary muscles; during health it is manifested only in the maintenance of what is called their *tone*, their natural tension and firmness: in disease, as we shall hereafter see, it sometimes acts upon them with terrific energy.

Some of the difficulties which I enumerated in the beginning of the lecture, as impeding our researches into the diseases of the nervous centres, are insurmountable. One or two of them, however, appear to call for a more attentive consideration.

I say we often fail to discover *any* deviation from the natural condition of these nervous centres, or of their appendages; even when the disorder of their functions has been strongly pronounced.

We are not to infer, from this, that no change has taken place in these parts. The only legitimate conclusion is, that the nervous functions are liable to be deranged, impaired, or suspended, by altered conditions, not traceable by our senses, or at least not yet discovered by us, of the organs which minister to those functions.

There may be only one such undiscovered disturbing cause, variable in degree in different cases; or (what is more probable) there may be several such conditions differing in kind. A blow or fall, which *jars* the brain; a sudden mental emotion; an electric shock; a tea-spoonful of prussic acid; any one of these causes may destroy life, yet leave no vestige of its action in the nervous substance upon which it operates. It is probable that the fatal condition is not, in each case, the same.

We may even form a reasonable conjecture of the manner in which the invisible changes are sometimes brought about. We can conceive, for example, that *undue pressure* upon the nervous pulp on the one hand, or *insufficient pressure* on the other, may constitute conditions of the kind we are in search of; and I shall be able, I think, to convince you that such is sometimes the case. Again, we can conceive that such conditions may be furnished by the varying state of the cerebral circulation. In point of fact, we *know* of some changes in the circulation through the brain which have the effect, invariably, first of modifying, and at length, if they are continued, of arresting, the cerebral functions. If *no* blood be sent through the arteries of the brain, death in the way of *syncope* ensues; if *venous* blood circulates in those vessels, it leads to death by *coma*.

But whatever may be the nature of the unknown, and perhaps fugitive, physical conditions of the nervous centres, thus capable of disturbing or abolishing their functions, it is useful to keep in our minds a distinct and clear conception of the fact that there must be some such physical conditions. By steadily retaining this idea of their real existence, we may hope, at length, to get some insight into their nature; which we are the less likely to obtain, if we dwell only on the obvious and visible injuries effected in the nervous substance; associated, as they are apt to be, with so perplexing a diversity of symptoms. Indeed, by the help of this distinct conception, we are at once enabled to reconcile some of the seeming anomalies and inconsistencies to which I before adverted. The same symptoms, I repeat, have been found to accompany physical lesions of the nervous centres, apparently different in kind, place, and degree: and, on the contrary, physical lesions, apparently identical in their nature, extent, and situation, are attended by different and contradictory symptoms. We must not attribute the symptoms, in such cases, to the visible physical lesions, but to some unperceived condition of the nervous centres, concomitant with those lesions. The *proximate cause* of the *symptoms* escapes our notice. The obvious physical changes may be remoter causes of the symptoms—causes of this proximate cause: but they may also be merely contemporaneous effects of some other remote agency.

Peculiarity of the cerebral circulation.— I have adverted to deviations from the natural and healthy circulation of the blood through the brain, as being capable of modifying the nervous functions. But there is a very remarkable peculiarity in the circumstances under which the cerebral circulation is carried on *at all times*, which it is very necessary that you should know, or be reminded of. There is nothing like it in any other part of the body. The brain is the only organ which, under the ordinary state of the parts, contains at all times the same quantity, or very nearly the same quantity of blood. This depends upon the mechanical construction of the head, and is capable of explanation upon the known principles of hydraulics. The brain is closely shut up in an unyielding case of bone, and is therefore exempt from the influence of atmospheric pressure: so that, supposing the solid parts unaltered, you cannot empty the blood-vessels of the brain. The cavity being completely full, the blood which circulates in the vessels cannot be materially increased, unless something is displaced or compressed, to make room for the addition. Nor, as it would seem, can the quantity be materially diminished, without the entrance of something to supply the place of the blood substracted. We should arrive at these conclusion by *à priori* reasoning; and we find that they are confirmed by certain very curious facts, which I will briefly mention, because they suggest considerations of much practical interest and importance.

Dr. Kellie, of Leith, performed, with reference to this subject, a series of experiments upon animals. He bled the animals to death, under various circumstances: and he found, as might naturally have been expected, that all the other organs of the body were blanched and emptied of their blood. But, (what would have been very surprising to him, if he had not been aware of the hydraulic principle just adverted to), the *brain*, in these cases, presented its ordinary appearance; or even seemed to contain more blood, in its superficial vessels, than usual. In one instance, he describes the sinuses as being loaded with dark blood, and the vessels of the pia mater as being delicately filled with florid blood. In another, the sinuses were charged with blood, the veins of the pia mater were filled, and the choroid plexus remarkably turgid. In a very few cases only did he remark that the vessels of the brain contained sensibly less red blood than in the others; and in all of these few, some serous effusion was observed. Having satisfied himself, by repeated trials, upon these points, he varied the experiment. He first made a small opening in the skull by means of the trephining instrument, taking away a little circular piece of bone, and *then* he bled the animals until they died; and in *all these* cases he found that the brain was as completely drained of red blood as any other part of the body. He did *that* with respect to the blood contained in the brain, which housekeepers do when they tap a barrel of beer. You know that if the barrel is quite full, you may introduce a faucet at its lower part, but no beer will run out through it. The pressure of the atmosphere operates upon that portion only of the fluid which is now exposed to the air, and its effect is to keep the beer in. But if you bore a small hole with a gimlet through the top of the cask, and so admit air into the barrel, the beer will then flow readily through the lower outlet. Dr. Kellie imitated this process of making what I believe is called a *vent-hole*, when he trepanned the skulls of the sheep, upon which he made his experiments, and admitted air to the yielding membranes of the brain.

He availed himself also in these researches of what may be considered the converse experiment. He desired to ascertain whether, under circumstances calculated to gorge the vessels of the *head*, those of the *brain* were or were not made really more full than usual. He examined the brains of two men who had been hanged. When the scalp in these cases was divided, a great quantity of blood escaped, marking plainly enough the congestion of the vesssels *exterior to the cranium:* but there was no such congestion observable within; "the sinuses contained blood, but in no extraordinary quantity; the larger vessels on the surface, and between the convolutions, were but moderately filled; and the pia mater was, upon the whole, *paler* and less vascular than we often find it in ordinary cases." I can corroborate the accuracy of Dr. Kellie's observations in these last instances by what I have noticed myself. I paid particular attention to the condition of the head, when the body of Bishop, the murderer of the Italian boy, was examined below stairs. When he was brought here after the execution, the eyes were bloodshotten, and the lips and countenance turgid and livid. The inner surface of the scalp, when it was turned back, and the exposed surface of the skull, were very red and bloody, and in one part, on the right side of the head, there was some blood *extravasated:* but when the bone had been sawn through, and the skull-cap removed, the large veins of the brain did *not* appear unnaturally full.

In the year 1826, I was present in St. Bartholomew's Hospital, at the opening of the head of a woman who had been hanged, the day before, for murder. I find the following statement in a note which I made at the time:—"The scalp was bloody; but the brain was of a very natural texture and appearance, and not more than usually full of blood."

In France, you know, they execute criminals by means of the guillotine; and some curious speculations have been raised as to whether the head, after decapitation, remains for a short space of time sensible of what is going on or not. These speculations have led to a closer observation of the phænomena that immediately succeed this mode of punishment; and it has been noticed that, although much blood is effused as soon as the head is severed from the body, it comes from the vessels of the *trunk;* and that the arteries and veins of the *head* do not discharge themselves of their contents for some little time. All these facts go, you see, to the same conclusion; viz. that so long as the solid contents of the cranium remain entire, the quantity of blood contained in the vessels does not, and cannot, vary much.

But although the actual quantity of blood in the cerebral vessels may continue the same, it does not follow that the relative quantities contained in the arteries and veins should remain unaltered. The healthy state of the cerebral circulation consists, in all probability, in the nice balance and adjustment of the blood in these two sets of vessels. I have already sufficiently explained to you the consequences of the circulation of venous blood through the arteries of the brain, shewing that without any change of texture in the cerebral matter itself, a mere alteration in the nature of the fluid circulating in its vessels may have fatal results. And the altered ratio of the arterial and venous blood in the organ may, and most probably does, disturb its functions very seriously.

In a very plethoric condition of the body, the arteries which go towards the head partaking of the general fulness, it is not difficult to conceive that there will be an impulse, or effort, *tending* to the propulsion of an undue quantity of blood into the arteries *within the cranium;* and, under certain circumstances, actually producing a fuller state of those arteries, at the expense of the cerebral veins. On the other hand, any sensible interruption of the return of the blood through the veins will virtually augment that impulse upon the arterial current, which arises from the force of the general circulation. It is true that we cannot measure or weigh, so as to compare them together, the actual quantities of arterial and venous blood circulating at any period in the cerebral vessels. We never, therefore, can have any demonstrative proof that the kind of derangement, the alteration of balance, that has just been supposed, does really occur: but, as it evidently, in the nature of things, may occur, so many physiologists believe that it actually does take place, under various circumstances of disease. And taking for granted not only the possibility, but the positive existence of such a derangement, we are enabled to explain many remarkable circumstances connected with the pathology of the brain, which might otherwise be altogether mysterious and inexplicable, we can understand how it may happen that a person shall fall down insensible, become completely comatose, and perish; and yet, on the examination of his brain, there shall be found no trace of inflammation, or of softening; neither extravasated blood, nor effused serum, nor any change that our senses are capable of estimating.

Again, supposing such a derangement as has been alluded to really to exist, and to be attended with disordered functions of the brain, (giddiness, or headache, or drowsiness, or delirium), there would also exist (by the supposition) a tendency in the force of the general circulation to introduce more blood into the arteries of the brain than they could receive. And one consequence of this would be, an increased flow of blood into the *external* vessels of the *head:* and we know that in apoplectic attacks, with such symptoms as were just mentioned, there often are marks of what is called a determination of blood towards the head, of external plethora of the head; such as redness and turgidity of the face and neck, throbbing of the temporal arteries, a loaded condition of the conjunctiva, and so on. Now we see, in this state of things, how it is that we are able to relieve that condition upon which the symptoms and danger depend. We cannot, by blood-letting or other evacuations, diminish the quantity of blood in the cerebral vessels, but we can take off from those vessels the excessive impulse and stress arising from the general circulation, and even reduce it below what would naturally constitute a healthy impulse; and so leave the vessels of the brain in a state favourable for recovering their proper balance. And that we *have* taken off this unnatural stress, we learn from the disappearance of the *external* redness and turgescence.

We may explain, by the help of this same theory, a very singular phænomenon observed in certain forms of cerebral disease, I mean, the *occasional* recurrence only of the symptoms, although the organic disease itself be *permanent*. For example, we see continually persons who are epileptic: that is, they have fits of convulsion and stupor *now and then*, and appear perfectly well in the intervals. After the death of such patients we sometimes find organic disease of the brain: a piece of bone perhaps projecting from the cranium, or a tumor, or a cyst: and this we are apt to consider as a sufficient explanation of the preceding disease; but we are always pressed with this difficulty: if the tumor or piece of bone was the cause of the paroxysms, why had the paroxysms any cessation?

It seems probable, or not improbable, that in such cases as these, and in many others, the permanent morbid condition does not interrupt the circulation in the brain, except when there is some increased impulse given to the circulation. The paroxysms are frequently accompanied by outward signs of plethora, or brought on by circumstances that are known to give a temporary increase to the force of the general circulation; such as intemperance, bodily exertion, mental emotion, a costive state of bowels, straining, and the like. A healthy brain might bear the variation thus induced in the pressure with which the blood from the heart seeks to enter the cerebral arteries; in the diseased brain the balance is more easily destroyed.

There is a totally opposite condition of the system to those which I have hitherto spoken of; marked, however, by symptoms of a like kind. And this also may be explained, upon the principle that the functions of the brain require, for their due manifestation, a certain equilibrium of the arterial and venous circulation.

Suppose we have anemia instead of plethora; suppose that the whole mass of blood in the body is diminished: the effect of this upon each artery, (and therefore upon the arteries of the brain), is that the calibre of the vessel will lessen, and consequently a less quantity of blood will be transmitted towards and into the cerebral arteries; but the whole volume of blood in the brain remains the same; therefore blood will accumulate more in the veins; and upon this increased mass of blood in the veins, the volume in the arteries will now act with a proportionally diminished and inadequate impulse. The balance of the circulation will be deranged, but in the *opposite direction* to that in which the former derangement was effected. It is probably in this way that the appearance of congestion in the superficial veins of the brain is brought about in animals that are bled to death.

Now disturbances in the functions of the brain, very much resembling those produced by the contrary derangement, will follow from this predominance of the blood in the cerebral veins also. Take one short case, very much to the point, narrated by Dr. Abercrombie, of whose full and clear statement respecting the peculiarity of the cerebral circulation I have made a free use: "A lady, aged 25, had been bled on account of head symptoms, which had supervened upon an injury. Considerable relief had followed each bleeding; but the symptoms had soon returned, so as to lead to a repetition of the bleeding at short intervals; and this had been going on for several months. When Dr. Abercrombie saw her, she was stretched upon a couch; her face of the most death-like paleness, or rather of the paleness of a stucco figure; her pulse very rapid, and as small as a thread; her general weakness extreme. The mass of blood appeared to be reduced to the lowest point that was compatible with life; but she still complained of frequent headache, violent throbbing in the head, confusion, and giddiness. It was evident that evacuations could be carried no farther; and, as a last experiment, trial was made of an opposite system of treatment: nourishing diet and tonics were prescribed. *In a fortnight* she was restored to very tolerable health."

We see scores of cases resembling this, every day, in chlorotic girls; in children with head affections; in women who have lost much blood in parturition; and in various other sick persons. These considerations are pregnant with the deepest interest. Dr. Marshall Hall, and the late Dr. Gooch, have deserved well of the profession and of the public, in having solicited attention to these cases, in which symptoms like those produced by plethora or inflammation are presented, and in which the treatment proper for plethora or inflammation has, for that reason, been too often adopted, with well-meant, but fatal energy. I do not pretend to tell you that our knowledge on these subjects is yet complete: for the points I have been adverting to are comparatively new to our contemplation: but I wish you to bear them steadfastly in mind in your future observation of disease. I am confident that you will often find in them the key to correct and successful treatment. I showed you, in the last lecture, how amaurosis might result from a comparative emptiness of the arteries of the eye: I am tempted here (as it illustrates also what I am at present speaking of) to cite an analogous affection, from a similar cause, of the sense of hearing. A gentleman, thirty years old, was reduced to a state of extreme weakness and emaciation by some complaint of his stomach. As the debility advanced he became very deaf; and this symptom varied in the following instructive manner. He was very deaf while sitting erect, or standing; but when he lay horizontally, with his head very low, he heard perfectly. If, when standing, he stooped forwards, so as to produce flushing of the face, his hearing was perfect; and upon raising himself again into the erect posture, he continued to hear distinctly as long as the flushing continued: as this went off the deafness returned. *(Abercrombie.)* An old clergyman, who is sometimes my patient, is troubled by two grievances; deafness, and an intermitting pulse. They are both always benefitted by quina.

Pressure.—I have thought it right to lay before you this view of the peculiar predicament in which the circulation of blood through the cerebral vessels is placed, and the probability thence arising that a disturbance of the equilibrium between the arterial and venous blood in that organ may be a frequent cause of certain derangements of its functions. But there is another principle by which many of the same derangements, that leave no vestige behind them in the corpse, may, with *at least equal probability*, be explained. I mean the principle of *varying pressure* upon the nervous substance. Physiologists say that the cerebral matter is incompressible: I know not on what grounds this opinion rests; but whether it be compressible or not, whether, that is it be or be not reducible by pressure into a smaller compass, it is clearly capable of having different degrees of pressure applied to it, and of being pressed out of its ordinary form. We shall see, hereafter, that by pressure exercised from within, by the distension of what are called the ventricles of the brain, the convolutions on its surface are sometimes flattened, and the natural furrows between them nearly effaced. Pressure there certainly is in what I shall have to describe to you as *hypertrophy* of the brain. There must be considerable pressure on the nervous pulp when blood is poured out within it from a ruptured artery in cerebral hæmorrhage. But the phænomena noticeable when a portion of the skull has been removed by the trephine, show very clearly that the encephalon sustains pressure from varying states of the circulation during perfect health. The surface of the brain, seen through the circular opening in the bone, is observed to pulsate; and to pulsate with a twofold motion. With every systole of the heart, the surface protrudes a little; and it again subsides with the succeeding diastole. This shows that the tension of the arteries, produced by every contraction of the ventricles of the heart, exerts a degree of pressure upon the contents of the cranium. But the brain has an alternate movement also, corresponding with the movements of the thorax in breathing; rising with every act of expiration, and sinking with every act of inspiration. Now, during expiration, the blood escapes less freely from the head through the veins; and thus again vascular fulness is found connected with evidence of pressure on the parts within the head. In further proof of this, if any were needed, I may again refer to Dr. Kellie's experiments. He removed a portion of the cranium of a dog by the trephine. The brain was observed to rise and fall alternately, but so as always to fill the cranium; so that the rise was a sort of protrusion through the opening that had been made. One of the carotid arteries was now opened, and in a minute or two afterwards there was an evident gradual sinking and receding of the brain from the margin of the opening.

It is certain then that, whether the cerebral pulp yields to it or not, there is a constant alternation of a greater and a less compressing force, exerted upon it, during life. It is not improbable that this continual variation of the compressing force may be essential to the performance of the cerebral functions. May not the brain be thus incessantly *charged*, if indeed it be (as has been suggested by no less a philosopher than Sir John Herschel) "an electric pile, constantly in action," discharging itself by the nerves, at brief intervals, "when the tension of the electricity developed reaches a certain point?" However this may be, it is equally certain that the compressing force may transgress its natural limits, in either direction; may be too great or too little. The functions of the nervous centres may be perverted, or lost, when the pressure becomes excessive; or, on the other hand, when the pressure is insufficient. And this hypothesis of pressure being at the bottom of many nervous disorders, will explain equally well the obscure cases to which reference has been made. The pressure may cause fatal coma, and yet no evidence of its operation be left in the dead brain; in cases of *permanent* disease with *occasional* symptoms, accidental circumstances may from time to time determine an undue amount of compressing force, or a deficient amount: and I think Dr. Abercrombie has gone too far when he says "we may safely assert that the brain is not compressible by any such force as can be conveyed to it from the heart through the carotid and vertebral arteries." Dr. Kellie narrates the following curious circumstance:—"Mr. G., with a numerous train of distressing symptoms, which too well marked the existence of enlargement of the heart, and of the violent propulsive energy of that viscus, had only one, characteristic of any disturbance within the head. On looking upwards to the whitened ceiling of a room, he saw a darkened spectrum, which vanished and reappeared with great regularity. It was soon discovered that the appearance of this umbra was synchronous with the systole of the heart, so that he used often, in my presence, to count his pulse with the utmost precision, by keeping his eye fixed on the ceiling, and numbering every appearance of the spectrum."

Objections, I should tell you, have been raised against this theory of pressure affecting the functions of the nervous centres; but I think the objections are susceptible of a satisfactory answer. I must content myself, however, for the present, with having pointed out the main grounds upon which the theory rests. The difficulties that attend it, and the considerations which diminish the force of those difficulties, will come necessarily before us on a future occasion.

The two principles which I have here touched upon, as relating to derangements of the nervous functions — namely, an altered proportion of venous and arterial blood in the cerebral vessels; and the agency of pressure;—may perhaps both run up into one and the same principle. Pressure may act by disturbing the balance of the circulation: or the disturbed balance may act by inducing a variation or shifting of pressure. The evidence in favour of the operation of pressure is, to my mind, the more certain and satisfactory of the two. To the one principle or the other I shall frequently be obliged to refer, in endeavouring to account for the phenomena of cerebral diseases: some of which I shall proceed to consider in the next lecture.

LECTURES
ON
MORTIFICATION,

Delivered at the Medical Theatre of St. George's Hospital.

By Sir Benjamin C. Brodie, Bart.
F.R.S. &c.

Lecture VI.—Jan. 20, 1841.

Mortification of the integuments of the leg.

There are cases of mortification of the integuments of the legs which appear to correspond very nearly to those of mortification of the toes, of which I treated in the last lecture. There is, however, sufficient difference between these two classes of cases to justify me in noticing them separately. Mortification of the integuments of the legs is of more frequent occurrence than mortification of the toes. We meet with it earlier in life, and in those who have less distinct marks of old age upon them; at the same time that the chances of recovery are greater in the former than they are in the latter. Undoubtedly mortification of the leg (as well as mortification of the toes) frequently has its origin in organic disease of the vascular system. But then I find reason to believe that it takes place in many cases independently of organic disease of any kind—as in persons who are merely lowered and exhausted by previous illness; whose heart does not act with sufficient power, because it partakes of the general debility. Such persons may and do recover perfectly, living for years afterwards without any symptoms of organic disease shewing themselves.

Let me not, however, run the risk of misleading you; as the more fortunate cases, of which I have just spoken, do not include the whole of those which you will meet with in practice. So when you are first called to a case of this kind you must always look at it, in the first instance, with anxiety and suspicion.

A person comes to you with a vesication on the leg, and when the cuticle has given way you find a little slough at the bottom. The slough may go on spreading, probably very slowly, perhaps with little or no suffering. By and by there is an attack of severe pain, with surrounding inflammation, and perhaps shivering. In a day or two after this the mortification is found to be making greater progress. In bad cases the mortification spreads with frightful rapidity, with much constitutional disturbance. The pulse becomes irregular, feeble, intermittent; the tongue is dry and brown; the patient wanders in his mind, then becomes comatose, sinks, and dies. Such is the history of one of the worst cases of mortification of the skin of the leg; corresponding, you will perceive, a good deal, in the symptoms, to those of senile mortification of the toes. There is a chronic attack of the disease at first, with little constitutional disturbance; the mortification spreading slowly; the disease afterwards assuming an acute form, and in a short time terminating life. But in other more fortunate cases the mortification goes on spreading slowly, with little or no suffering, with no great constitutional disturbance, and at last under proper treatment stops; the slough coming away, the sore granulating and healing. As I told you before, a patient who has suffered in this manner may live for many years afterwards, and have no return of the disease.

Sometimes the disease appears in a somewhat different shape. There is a simple varicose or other ulcer of the leg: by and by the surface of the ulcer assumes a dark colour, the granulations die, the mortification extends to the skin at the margin, and spreads slowly or rapidly, according to circumstances. Perhaps the slough may come away, the sore begin to heal, and actually heal to a certain point; then mortification may begin again, and go on to a certain extent, and then stop a second time. In this way I have known the disease to linger on for a year or more, sometimes terminating well at last, and at other times terminating unfavourably.

The treatment of these cases is very similar to that of the cases which I noticed in the last lecture, and, therefore, I need not occupy your time long with this part of the subject. The patient ought to be kept in the recumbent posture in the uniform warmth of bed. This I conceive to be a most essential part of the treatment, though it may sometimes require a considerable effort of your persuasive powers to carry it into execution. Not feeling himself ill, and suffering little or no pain, he may wish to lie on a sofa, or even to walk about. I have known patients thus afflicted walk to my house to see me, and have had great difficulty in persuading them that they must go home and go to bed.

With respect to the local treatment: in the greater number of cases I find none to answer so well as this—applying some simple dressing (calamine cerate, for example) to protect the part, and then wrap up the limb in carded wool, in the way which I explained in the last lecture. This should be left undisturbed, in the first instance, for several days; the period varying afterwards according to the quantity of discharge. There are a few cases to which this treatment is not at first applicable: I allude to those in which there is a good deal of surrounding inflammation, and great heat of the limb. Under these circumstances the sufferings of the patient may be aggravated by keeping the limb wrapped up in wool. The part requires to be kept cool, and you may apply a piece of lint dipped in water, and kept constantly moist, or a simple poultice. Water dressing, however, is the simplest application, causing the least trouble to the patient, and is, at any rate, as effectual as the poultice. But when the heat and pain have in some degree subsided, then you may have recourse to the other treatment. When the slough has separated a broad ulcer is left, seldom very deep, and often quite superficial, and for the treatment of this no specific rule can be laid down. Usually the sore does not require any very stimulating application. I have found, on the whole, the Barbadoes naphtha (if it be genuine) a better remedy for the ulcers left after the slough has separated than any thing else. It is a mild and soothing application, yet it has a great tendency to clean what we commonly call a foul ulcerated surface. It is applied thus:—You dip lint in it, lay it upon the surface of the sore, place a piece of oiled silk over it, and then apply a bandage not very tight. This may be changed once, and, under certain circumstances, twice daily. If the limb be cold, and the circulation in it feeble, you may continue to apply the carded wool, or a thick fleecy hosiery stocking after the slough has separated; and in general it will be prudent for the patient to wear a warm stocking ever afterwards.

With regard to the constitutional treatment, your first attention must be directed to the state of the digestive organs. Generally in these cases the patient requires an occasional mercurial purgative once in four or five days, or once in a week, according to circumstances. I have given bark and other tonics, ammonia, and so on; but I cannot say that my experience leads me to place much faith in any of these remedies. I may refer you here to the observations on this subject which I offered when speaking of mortification of the toes. It is most essential that the patient's stomach should be able to digest food, and you should take care not to overload it with medicine if it interferes with his food; for food is much better than medicine. Wine is generally required, except just at the period when there is much inflammation and pain in the leg: but the quantity of wine administered must depend on circumstances. Here also I may recal to your minds what I said on the use of wine in the last lecture. Opium in these cases is, according to my experience, very serviceable, just as it is in cases of mortification of the toes, but subject to the same restrictions as in the last mentioned cases. If it makes the tongue dry, if it interferes with digestion, it does harm; but if it does not make the tongue dry, nor interfere with digestion, it does great good. You may exhibit it at first in moderate doses, increasing them according to circumstances; but always bear in mind that when you have occasion to exhibit opium, mercurial purgatives will be especially required, as opium always has a tendency to stop the secretion of the liver, and nothing counteracts this ill effect of it to the same extent as mercury. When the sore has become quite clean and healthy, you may apply diachylon or soap plaster in stripes in a circular manner round the limb, with a bandage from the toes to the knee, treating it as you would treat other sores of the leg.

Peculiar species of dry gangrene of the skin.—The wax model that you see on the table exhibits the appearances of a very peculiar sort of mortification, which is not well described, so far as I know, by surgical writers. If I recollect right, however, there is a brief notice of a case of this kind in M. Quesnay's book on gangrene—a very excellent work, published by an eminent French surgeon about the middle of the last century.

I have extracted from one of my old notebooks the history of the first case of the kind that I met with; and I shall read it as it stands here, believing that I can adopt no better method than this for conveying to you a knowledge of this disease.

"Susan Orange, a girl fourteen years of age, was an out-patient of the hospital, under my care, so long ago as October, 1812, on account of some kind of eruption of the skin of the left arm. She appeared full grown, but had never menstruated. She had a pale sallow complexion, with a very feeble pulse; altogether exhibiting marks of a very languid state of the system. About the end of February, 1813, the eruptions became very much relieved. (Now of this early part of her case I have only some short notes; and it is not even stated what was the exact character of the eruption. Whatever they were they did not exist to any very great extent.) Almost immediately after the eruptions in the arm had disappeared, in the beginning of March, 1813, she was seized with pain, confined to a single spot on the left forearm. The pain lasted three hours, and then subsided; but that part of the skin of the forearm to which the pain had been referred, and which was of about the extent of a shilling, was left with a white and shrivelled appearance; it was, in fact, dead, and in a short time the dried skin became hard and horny, of a straw colour, somewhat resembling a piece of parchment in appearance. As it dried, the small vessels in the skin became apparent, injected with red blood in a coagulated state. In a few days the slough separated, leaving a superficial sore, which granulated and healed under some very simple treatment. But before this sore was well closed, the patient had a second attack of pain referred to the margin of the cicatrix, and this was followed by a second slough very similar in appearance to the first. There was, however, this peculiarity in it—that while it formed a complete zone or circle round the cicatrix it was at some little distance from it, there being a narrow band of sound skin left between them. This second slough gradually separated, and the sore which it left healed; but before this process was completed there was a third attack of pain at the margin of the second cicatrix. A third slough formed, nearly similar to the last—that is, presenting the appearance of a zone, with an intermediate zone of sound skin between it and the last formed cicatrix. The sore left by the third slough healed like all the others. On the 9th of May there was another attack of pain referred to another spot on the inside of the left forearm. It lasted a day and a night, was more severe than on the former occasions, and was followed by the destruction of a piece of the skin two inches in diameter. The slough presented the same appearances as the former ones, and came away at the end of a fortnight, being of the thickness of a crown piece. It left a sore which healed but slowly. About the middle of May she began to experience a slight pain upon one instep, which continued, and on the fourth of June this pain became very intense, entirely preventing sleep on the following night. On the morning of the 5th of June the pain had subsided, but a slough was formed as large as the palm of a man's hand, covering the greater part of the instep, which presented the same appearances, and ran the same course, as those on the forearm, except that the separation of the slough, and the healing of the sore, were more tedious than had been the case in the upper extremity. After this no fresh sloughs formed for a considerable time, though the patient continued in the same feeble state of health. She left the hospital, and I lost sight of her until October in the same year, when she was admitted into the physicians' ward, under Dr. Warren. She remained there for a considerable time in very weak health, with occasional formations of the same white cutaneous sloughs in different parts of the body. At last she quitted the hospital, and I lost sight of her altogether. But Mr. Hammerton, of Piccadilly, who was apothecary of the hospital at the time, informed me that she went to stay with some friends who lived near Windsor. He has since heard that she died there, and that there was no post-mortem examination.

The model that you see on the table was taken from a patient of Mr. Keate's, and it very accurately represents the peculiar appearance which the sloughs assumed in the case of which I have given you the history. You see the disease in its various stages: some of the sloughs are recently formed, and in other places they have separated, and there is a clean granulating ulcer. The only circumstance that I remember different in the case of Susan Orange is, that there the vessels injected with red blood in a coagulated state, and ramifying through the white slough, were much more distinct than they are in this model. Mr. Keate's patient became a great deal better, and it is supposed that she ultimately recovered under the continued use of tonics. Tonics, and especially steel, were administered to the first patient whose case I have mentioned, without any advantage.

I had a patient in the hospital who laboured under a disease very similar. This also was a woman with irregular menstruation, who was liable to attacks of pain in the leg, which ended in the formation of thin sloughs. The only difference between this and the other cases was, that each slough was preceded by a vesication. The slough itself had the appearance which I have just described. This patient improved very much under the long-continued use of small doses of sulphate of copper; but at last she left the hospital, and I lost sight of her; and, indeed, you know that it must be very difficult to get the whole history of one of these cases; or of other cases, in which the disease is protracted for a great length of time.

Mortification from the Ergot of Rye.—Cases of mortification of the limbs are described as arising from the use of certain deleterious articles of food, especially from the eating of bread made with blighted rye, or rye containing ergot. It is said that people who eat bread of this unwholesome kind are liable to mortification of the extremities; and that whole families become affected with mortification under these circumstances. I have never seen any of these cases myself, and I cannot obtain from books any satisfactory information as to their pathology. I am not aware that there is any account extant of the appearances which they exhibit on dissection. I think it right to notice the subject, but as I can tell you nothing more of it than you can find in books I shall not dwell upon it.

Mortification of the extremities from unknown causes.—In one of the earlier volumes of the Annual Register you will find a very curious account of a whole family becoming affected with mortification of the extremities, though it is not stated that they had been living on any deleterious articles of food. The account is given by a physician in Suffolk of a family in that county, and nothing is stated which throws light upon the cause of the mysterious disease. The father, mother, and five children, if I remember right, were all affected. The lower extremities mortified in all except the father, in whom the fingers only mortified. Mr. Solly, in the two last volumes of the Medico-Chirurgical Transactions, has given the history of a child in whom one extremity after another, without any evident reason, mortified. The disease went on for twelvemonths before it terminated fatally. The limbs had all mortified, and the sloughs had separated, a sort of natural amputation having taken place. The child died, and the body was examined after death, but the examination threw little light on the pathology; and the cause of the disease is quite mysterious.

In practice, you will every now and then find other forms of mortification, which it is impossible to notice in lectures.

Anthrax or Carbuncle.—There is, however, one other form of this disease which I think deserves your especial consideration, and with an account of which I shall finish this division of my course of lectures. The disease to which I allude is what is commonly called anthrax or carbuncle. There is something more to be said on this subject than upon ordinary cases of inflammation terminating in gangrene, and it is for this reason that, although I have referred to it already in one of my former lectures, I shall again call your attention to it.

Persons who become affected with carbuncle are most frequently those belonging to the affluent classes of society; and those especially who have eaten and drunk a good deal, and lived freely, and who have apparently enjoyed robust health, are liable to this disease, after they have passed the middle period of life. Dr. Prout has observed a very peculiar circumstance connected with this carbuncle, namely, that it frequently exists in combination with that form of diabetes in which there is sugar in the urine. The patient is generally in a state of ill health before the carbuncle appears; often he feels ill, though he hardly knows how to explain in what respect he is so, and then the carbuncle shews itself.

Carbuncle, in its commencement, does not always present itself just in the same manner. Sometimes there is a red cutaneous tubercle, or a pimple, which becomes exceedingly painful, resembling a boil, but which, instead of soon terminating like a boil, goes on increasing in size, becoming more and more painful, with much induration at the base. Supposing the disease to be left to run its course, it will proceed thus:—the induration goes on increasing in degree as well as in extent, the skin becoming hard and brawny, and of a dark crimson colour, especially at the centre of the induration. I have known the induration at last to occupy a space not less in size than that of a soup-plate. The patient all this time suffers exceedingly from a burning pain, with a sense of weight, constriction, and stiffness. His health is otherwise deranged; his pulse is frequent; his tongue furred; sometimes he is sick, and perhaps he nauseates his food. In cases that terminate ill, you will find, after a certain time, when the induration is very extensive, the pulse becoming weak, irregular, and intermittent; there is great prostration of strength, a hurried manner, delirium, coma, and this last symptom precedes death. But the disease may terminate more favourably, even without the aid of surgery. The central part of the hardness becomes softer; you can feel an imperfect fluctuation under the fingers; the skin ulcerates in one small point, then in another, till you find it perforated in a great number of points, and a white slough is seen through the perforations. By and by the intermediate portions of the skin between these points perish, and a slough of the skin comes away. There is a discharge of a small quantity of thin matter, and a large slough of the cellular membrane is seen underneath. Some time afterwards the slough comes away, consisting partly of dead cellular membrane, partly of lymph, and partly of pus, which is infiltrated into it. Then the exposed surface granulates and heals.

But in other cases the disease, in its origin, is somewhat different, shewing itself not in the skin, but in the subcutaneous texture. There is a hard lump in the cellular membrane under the skin, which is excessively painful; this goes on increasing till it adheres to the skin, then the skin becomes discoloured, and the disease runs the same course as in the other cases, in which it begun with a red pimple.

The disease occurs in men more frequently than in women, perhaps because they live on the whole more intemperately. It occurs more frequently on the back, between the shoulders, than any where else; sometimes on the back of the neck, and sometimes on the occiput. I have observed that when it is on the back of the neck, and especially when it is on the occiput, the disease is very dangerous; but by far the greater number of patients recover in whom the disease is situated elsewhere, and in whom a proper treatment is adopted. The disease is not very common on other parts of the body; I have, however, known it to occur on the nates and thighs, and once upon the face. I was sent for to see a gentleman who I was told was very ill, and when I visited him I could not at first conceive what complaint he had. I never saw such a man's face before. It took me some time to understand what it was. There was a carbuncle on the nose, and you may conceive, better than I can describe, the strange appearance of the human face under such circumstances.

This disease, I have said, occurs in those who have lived very freely, and, like most diseases to which such persons are liable, requires to be treated not by lowering the patient, but by giving him nourishment and wine—nourishment, as far as his stomach can digest it; wine, as far as he can take it without being heated, and rendered feverish and irritable. Where there is excessive pain you must administer opium. It is better, generally, when the patient is suffering a great deal of pain, to give a good dose of opium at night; but, if possible, to avoid giving it in the day-time. There is always a great objection to the exhibition of opium, as it will interfere with digestion and confine the bowels; but there is a still greater objection to the want of sleep, and you must give it as the least of two evils. If you administer medicine besides, bark, quinine, and other tonics, may be given. But I do not think that in general, during the active stage of the disease at least, you will find much good from any thing but nourishment, wine, and opium, with an occasional purgative. The purging, however, should not be carried to an excess. Moderate purgatives, administered at intervals, may be useful, and indeed necessary; but a repetition of drastic purgatives will be injurious.

But the principal remedy in these cases belongs to the local treatment. I described to you the disease, supposing it to be left to run its course, and it is always desirable to know what a disease will be if you let it alone; but I do not advise you to let this alone, nevertheless. Until there is an opening in the skin, until the pus begins to escape and the slough is exposed, the brawny hardness of the skin continues to spread. The slough and matter require an exit, and you must give them an exit by making a free crucial incision through the carbuncle. Make, not a small partial incision in the middle, but one which extends completely through the whole brawny tumor, from one side to the other, and then another at right angles to the first, also completely through the tumor and to the bottom of it. If this be done effectually, and not too early, you will generally find that the progress of the induration is stopped. If it should, however, continue to extend, you must follow it with an incision on another day. Where this incision is made at the proper period, it is generally effectual; and with good medical treatment the patient recovers. In making the incision, you will find that you divide a thick slough of the cellular membrane, and it has a peculiar appearance, as I have already explained, in consequence of its being infiltrated with lymph and pus, so that when it comes away it is more than the mere destruction of the living parts will account for. After you have made the incisions you may apply a poultice to the part, and change it three or four times a day. It is not uncommon to apply some digestive ointment, such as used to be called *basilicon*, or the *unguentum elemi compositum*; it being supposed that this favours the separation of the slough. I do not know whether such applications have this effect or not; perhaps they may: at any rate they can do no harm. When the sloughs are separated, the patient's system will be relieved; but he will require support, both from food and medicine. If they were not useful before, he will now derive benefit from tonics, especially from bark. Although I much doubt the efficacy of tonic medicines in the early stage of the disease, I have no doubt they are very efficient and very useful at this period, when the sloughs have separated.

M. Dupuytren says, that there are elongations of the subcutaneous cellular membrane which extend into the skin, and that when one of these becomes inflamed it forms a boil, but if several be inflamed they form a carbuncle. It may be so: the disease may begin in these elongations of the cellular membrane of which he speaks, as far as I know; I cannot contradict this opinion. But there is something more than this: I do not believe a carbuncle to be a mere local affection; it is a constitutional disease, and is always preceded by something wrong in the general health. It seems to me as if there were something like a poison in the circulation, which is thrown out of it into the cellular membrane in cases of carbuncle; so that we might be justified in classing this disease with small-pox and other exanthemata. In a case of small-pox, there is first an attack of fever, which is relieved as soon as the pustules appear; and as these contain the variolous poison, there is little reason to doubt that it is the expulsion of the poison from the circulation that relieves the fever. The case which I am about to relate seems to indicate that something like this happens in cases of carbuncle. A gentleman, an old acquaintance of mine, formerly a surgeon of eminence in a provincial town, but who has retired from his profession, about sixty-three or sixty-four years of age, called upon me some years ago, at my own house, in the morning, and said there was some complaint in his back, and that he suffered a great deal of pain. On examination I found that there was a carbuncle. I sent him home, and told him to poultice it. Two or three days afterwards, it being, as I supposed, in a proper state for the operation, I made a crucial incision through it. He was very much relieved, and was going on very well indeed, when there appeared another carbuncle, but on a smaller scale than the first. It was not a pimple in the skin, but the subcutaneous form of the disease which I have already mentioned. I told him what I believed to be the case. He said that it did not give him a great deal of pain, and I therefore thought it would be better to let it advance a little further before I opened it. It went on increasing, the skin over it became purple, and the whole assuming the ordinary form of carbuncle. In the meantime he continued well, and appeared to have hardly any thing the matter with him except the local complaint. But two or three days afterwards, on calling upon him, I found him in bed. On inquiring the cause, he said, in a faint voice, "O! my dear friend, I am dying." I expressed a hope that that was not the case. "O! yes," said he, "I am dying." I found that indeed his words were true. His skin was cold and clammy, and the pulse scarcely perceptible. I asked him how long he had been in that state? His answer was, "During the night, all the pain subsided, and at the same time I became ill. I believe that the carbuncle itself has disappeared." And so it was: when I examined the back I could find scarcely a vestige of it. He died in less than twenty-four hours after this change had taken place.

Another circumstance is worthy of notice, as confirming the view which I have taken of the pathology of this disease. It frequently happens, when a patient has recovered from a large carbuncle, that other smaller ones, like boils, appear on different parts of his body; and a succession of these, gradually becoming smaller and smaller, may continue for many months, or even for one or two years.

AN ACCOUNT
OF SOME
CASES OF UNNATURAL NARROWNESS OF THE AORTA,

AND OF THE CONSEQUENCES OF THIS MALFORMATION;

With Observations on the Causes which produce the Communications between the two sides of the Heart.

By T. Wilkinson King,
Lecturer on Pathology at Guy's Hospital.

[Continued from p. 689*.]

[*For the Medical Gazette.*]

Of the cause of the communication of the ventricles of the heart.

I should in the next place attempt to shew that the narrow aorta is one among many causes of the communication of the two auricles, but it will scarcely be out of place to make a few remarks on the communication of the ventricles, and these may lead to a readier comprehension of the opinion which I shall then take up.

It is scarcely a modern remark that in a very large majority of the cases in which the ventricles communicate, the pulmonary artery is at the same time obstructed seriously, though in various degrees. I do not suppose the case is different when the artery is in all points perfect, but takes its origin from a little third ventricle, through which the true right ventricle has the same kind of difficulty in expelling its contents towards the lungs.

I am not aware that any one has explained† the above coincidence; and, indeed, until a corresponding elucidation of certain exceptions occurred to me, it seemed very difficult to prove any necessary relation between the two states; but now probably the explanation adduced below will only require to be understood to obtain credence.

If the diagram above represent the state of the septum of the ventricles during the second month of fœtal life, and we suppose an impediment in the pulmonary artery, it is easy to conceive that delay and accumulation in the right ventricle may keep up a current and a passage into the left cavity in the situation of the dotted line; and thus, on the other hand, impediment in the aorta should also lead to the persistence of the ventricular communications by the pressure of the blood towards the right side. This last case is comparatively rare.

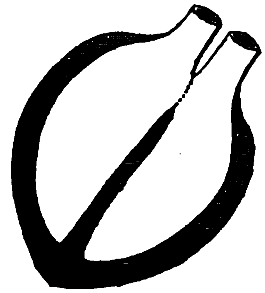

Diagram of the two ventricles of the heart and their great arteries, with the septum of the ventricles incomplete, about the fifth week of fœtal life. The dotted line is in the situation of the common communication* of the two cavities.

The common instance is that in which the aorta is said to arise from or communicate with the two ventricles, the pulmonary artery being too narrow, and sometimes completely obstructed; in which case the aorta receives all the blood, and supplies the pulmonary arteries through the persistent ductus arteriosus.

The rarer cases are those in which the pulmonary artery arises from both ventricles, the aorta being too small, and the ductus arteriosus furnishes the descending aorta, or the chief part of it. Here I suppose it must be evident that the left ventricle will impel its residual current into the pulmonary artery, and thus maintain the opening in the septum.

The facts on which the above opinions are based must be too well known to need even a reference.

At present I do not know if there be certainly any other than the two kinds of cases here given. The following instance, however, may be thought to offer some difficulty in the way of the conclusion:—

No. 1380.—In the collection at Guy's

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[*] The reader is requested to correct the following misprints:—Page 686, for "the girl's foot" read "the girl's fist." Page 689, for "wiry" read "every."

[†] A seemingly erroneous interpretation of Louis by Dr. Joy may appear to contradict this conclusion.

[*] Notwithstanding a contrary statement which has run through a succession of books, I very much doubt that the perforation of the septum ventriculorum ever occurs at any other part.

is a "heart with an aperture in the upper part of the septum of the ventricles. It was taken from a young woman, aged 20, of loose life, but who had enjoyed good health till two years before her admission. Her principal symptoms were lividity of countenance, orthopnœa, and great physical weakness. The heart is not enlarged." The aorta seems pretty natural. The pulmonary artery can only be said to be small, and to have rather scanty and weak valves. The circumference of the perforation betrays a degree of thickening, roughness, opacity, and induration, that cannot well be accounted for, without inferring the existence of inflammation at some early period. My opinion is, notwithstanding, that the small pulmonary artery was probably concerned in the origin of this affection.

It may happen that the obstruction in the pulmonary artery or aorta is not quite sufficient to obviate the closing up of the septum, and we may find it, therefore, completed, though scantily; thin, membranous, broad, and semi-transparent; a fossa ovalis in the septum of the ventricles, situated beneath and between the posterior aortic crescent and the right anterior one; and this is not a very uncommon appearance.

We have next to trace the consequences of congenital obstructions in the foramen ovale.

Of the communications of the two auricles.

Although the kind of impediment we have been considering may be inadequate to maintaining the ventricular communication of the young fœtus, it may still exert a mischievous influence on the foramen ovale of the auricles, by creating an undue distension in one auricle or in both. The parts being weaker, and the opening continuing naturally till birth, may render the effect of distension more considerable as well as more frequent.

If obstructions in the respiration and pulmonary circulation arise in the young child, (and sometimes doubtless at any age), the right auricle of the heart being distended by the delay in the pulmonary artery, and consequent accumulation and reflux in the right side of the heart, the valve of Botal may still be unclosed or very ready to yield, whilst the support of fulness in the left auricle is unnaturally deficient. So long, however, as the foramen ovale is truly valvular (opening only when the chief pressure is from right to left) we must suppose that it transmits no blood when the two auricles are equally filled; that is to say, when the pulmonary circulation is easy, and allows the left auricle to be well filled from the right ventricle.

M. Bizot has shewn that in two-sevenths of the cases he has examined there was more or less communication between the auricles; but I do not believe the communication is to be considered as important in more than a quarter of the cases in which it exists. A narrow and oblique passage can avail little in any case.

It is only when the opening is free, and the pulmonary obstruction material, that the circumstance is to have weight in physiological and pathological reasoning; and these instances are probably not equal to one-fiftieth of all fatal cases.

Of course, as a matter of theory, it is true, with respect to the communication of the auricles and of the ventricles, that the power being greater on either side will determine the course of the stream; but other important circumstances must also be weighed along with the power, in considering the direction of the currents and their peculiar effects. The quantity of influx, the degree of distension, the relation between the capacity and thickness of the cavity, and the freedom of the outlets—all these, and probably more, are to be considered, and comparison made between them on the two opposite sides of the heart.

I shall now speak of a few marked cases in which, the foramen ovale being closed, pressure on one side has deepened the fossa into a pouch or cul-de-sac—a state which I shall call sacciform depression of the fossa ovalis. The only importance which I would here attach to the knowledge of this change relates to its illustrating still progressive alterations, such as the perforation of the fossa, as by absorption, of which I shall afterwards speak.

The sacciform depression of the oval fossa is scarcely, I think, very uncommon. I do not know that it is ever produced but from undue pressure in the right auricle.

No. 1418 in the Museum is a "heart somewhat dilated, with large excrescences or vegetations about the aortic valves, which are somewhat contracted. There are likewise some adherent coagula within the left ventricle attached to the thickened curtains and cords of the mitral valve. The patient laboured under rheumatism about four years before death, but only complained of palpitation of the heart for the last twelve months. There are traces of slight pericarditis." Here is also a wide unequal fossa ovalis, with a concave depression; the ascending aorta appears narrow; the descending wider: the dilatation of the heart is considerable.

A drawing in the collection at Guy's represents a somewhat early stage of this sacciform depression of the fossa ovalis. The cavity would lodge the larger half of a filbert. In this case the foramen was open, but strictly valvular: it would easily have admitted a black lead pencil (vide No. 39-40).

The following is a somewhat more remarkable case (14th 8th mo. 1838):—A man, æt. 32, was affected with renal dropsies, and severe pulmonary engorgements. The cavities of the heart were dilated. The left ventricle was a little thickened; the left auricle was less dilated than the right, and the fossa ovalis formed a wide and deep depression, quite entire, but much and unequally thinned. A laminated cystiform clot was found in the right auricular appendix, and a similar body occupied one cup of the aortic valves.

No. 1396, in the Guy's Museum, is a specimen of an "enlarged heart, the parietes of which are remarkably attenuated near the apex of the left ventricle; the carneæ columnæ appear to be ruptured, and there is a considerable coagulum formed at this part (aneurism of the heart). From a gentleman, rather above the middle age, who died very suddenly in a state of syncope, of which he had had two or three previous attacks." This is an instance of general dilatation of the heart, and the auricles have equally participated in the yielding. The foramen ovale has a slight and valvular opening, but the membrane of the valve is elongated into the left auricle like the top of the finger of a glove, nearly an inch in length, and with very little appearance of wasting.

These examples are, at least, curious; and I do not know that they have been before adverted to, yet possibly, when looked for, they will not prove extremely rare*. They result from undue pressure on the right side, together with defective support on the left. The main importance of the observation of them, after all, may be, that they illustrate the state of the auricles as to tension, which is still too little understood. It is needless to repeat that they are adduced here for a different object.

Many pathologists have dwelt on the possibility of the foramen ovale being opened by rupture, or a kind of ulceration; and I think I have some facts in illustration of these opinions, or rather of the latter process; for, although sudden violence, regarded by itself, may affect any part of the body, I conceive that, apart from an ulcerative or absorbing process, the laceration of the septum of the auricles must be exceedingly uncommon, and still more difficult to establish in the way of demonstration. The reflection is reduced almost to an absurdity, when we try to suppose the kind of external violence which an experimentalist might resort to, in order to rupture the fossa ovalis in an ox or a sheep alive and in health

Independently of the common valvular opening in the fossa ovalis of the adult heart, I think I could adduce a good variety of partial wastings and perforations arising in company with general dilatation, and some of these combined with undue openness of the proper foramen, which is likewise, I presume, mainly attributable to distension. It is, however, most probable that almost all the remarkable recorded instances of wasting of the valve have been connected with obstructions in the circulation in early life.

The following examples will not fail to establish two distinct circumstances. First, the valve perforated by absorption; and, secondly, the valve being incompletely closed in consequence of expansion of the auricular septum. I have not thought it necessary to advert to the simple congenital scantiness of the valve, which is well known.

I have by me a sketch from a preparation in the Boston Museum*, in which the diameter of the whole fossa ovalis is considerably more than an inch, but it is principally occupied by two nearly equal oval perforations, which are only separated towards the centre of the fossa by a thin narrow fibrous band. This band widens towards its connections with the edges of the fossa, and I conclude that it is progressively wasting in the middle. I need not tell those who reflect on these states, that, if the part were in a permanent state, it would be in the form of a rounded cord in the middle. My opinion is, that the disturbance continuing (*i. e.* the dilatation of the auricles), this band would become divided; for it is evident that a defective nutrition, as well as absorption, are predominant.

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* Since writing the above I have again met with the like appearance. An expanded aneurismal fossa, completely cup-shaped, with slight partial thinning, but without any valvular or other opening. The patient was sixty-six years of age, and had aneurism of the aorta and carotid.

The following example occurred to Mr. T. Iliffe, of Newington:—A lady, about twenty-six years old, of delicate but not bad health, who had sometimes had bluish lips, became pregnant for the first time, and, towards the end of gestation, had dyspnœa and anasarca, a feeble and intermitting pulse, and a slight cough, with frothy expectoration. After an easy delivery, her health seemed to improve for a few days, but a rapid return and aggravation of symptoms, with somewhat coagulable urine, carried her off in a fortnight.

The heart presented some general dilatation and hypertrophy. The right ventricle was the most affected, and the pulmonary artery was disproportionately large. The foramen ovale formed a circular aperture of full three inches in circumference. Some strong reticular threads, situated posteriorly, or rather inferiorly (where the trace of the valve is to be sought) were the only remains of valvular membrane—sufficient indices of so many perforations in their interstices. The aorta was evidently too small. The kidneys were a little granular.

The following are exemplifications of the influence of distension in producing the wasting and retraction of the valve of Botal, without perforation: yet the wasting and perforation will be thought almost identical in some cases, as regards their origin and progress, since both are equally indicative that the absorbent action predominates over the nutritive power.

In the first case I presume that the narrow aorta has given rise to the free communication of the auricles.

In the second, that the same cause must explain the communication both of the ventricles and auricles.

The third case has a wide foramen ovale, which is probably referable to distension, which has arisen from undue narrowness both of pulmonary artery and aorta; and here it is observable that no inequality of fulness has existed to obstruct the growing up of the septum ventriculorum.

The concluding example is one in which both pulmonary artery and aorta are narrow, but the chief consequences belong to dilatation of the heart.

In the collection at Fort Pitt, and in the Section of the circulating organs, No. 7, is a "Heart much enlarged, the foramen ovale open: diameter of opening an inch and a half.

From Michael Cooney, æt. 37, 45th Regiment, who, having suffered much in Ceylon from dyspnœa and other distressing pectoral affections, was invalided. On arrival he was admitted into hospital, and died in ten days. On dissection, the lining membrane of the trachea and bronchiæ was observed to be highly inflamed, and the heart much enlarged, particularly on the right side. There was no vestige of septum between the auricles; the pulmonary veins were much enlarged."

I have examined this specimen several times. The pulmonary artery is very wide, and the aorta is decidedly small; and I presume it had an important share in the production of this man's disorders.

No. 5810. In the Comparative Anatomy Museum of Guy's is the heart of a sheep, seemingly nearly full grown. The right ventricle seems nearly as strong as the left, both the cavities being dilated. The valves appear healthy, but the safety valve is perhaps too close. There is a communication between the ventricles, in the usual situation, wider than a goose's quill. The foramen ovale is as large in diameter as the aorta itself, with a trace only of valvular membrane posteriorly. The auricles have been dilated; the aorta is manifestly too small; the pulmonary artery is healthy and large. This is, I think, an interesting example of the consequences of a moderate permanent obstruction in the main outlet of the heart, existing from birth, and all the appearances which are anormal are fully explained by the view proposed.

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* The Collection of the Boston Society for Medical Improvement.

In the end of March, 1838, a boy, aged eleven, who had always been a little odd in his manner, and was certainly not quick in intelligence, and who had only been considered unwell for a few days, went into the water-closet, cried out, put his hand to his heart, and died. During the preceding few days his lips had been observed to be bluish.

On the second day, or later, the heart was examined by Mr. Key. It was much distended, and particularly the right side.

Five days after its removal from the body I noted that it was a good deal enlarged, the muscular substance good, and the auricles then pretty natural. A recess on the right involved a little piece of white firm fibrous clot.

The foramen ovale was a circular opening, half an inch wide, with scarcely a trace of valvular structure; it readily admitted my thumb. The right ventricle was a little too capacious, but firm and greatly thickened; the moderator bands, two, oblique and thick; the first column of distension nearly double, large and confined. There was a second column, and two considerable accessory (or fixed) columns, inclined full half way to the yielding wall. A clot, involving the tricuspid, which Mr. Key regarded as the cause of death, had been torn away. When I saw it it was a ragged mass, as large as a walnut, mostly pale, and uniformly solid and firm. At one or two parts it was dark and more grumous. It seemed altogether without traces of layers or gradual formation.

The circumference of the pulmonary artery varied a little, about one inch and three quarters.

The left auricle was certainly less developed than the right.

The left ventricle, without being small and contracted, was less capacious, and scarcely thicker, than the right.

The circumference of the aorta varied a little, about one inch and a half.[*]

In the above example the pulmonary artery and aorta appear pretty plainly to have been too small, and the state of the heart seems to me to be sufficiently accounted for by this fact. Notwithstanding the impediment there had been no partial distension of either ventricle to prevent the septum closing up. Delay in the auricles had led to the wasting of their valvular partition.

19th, 12th mo., 1840.—E. L., a female servant, æt. 21, who has menstruated pretty naturally since her fifteenth year, has had some slight general pains occasionally for two years. She has had very severe palpitations, more or less, for nearly a year, decidedly relieved, however, during the summer. She has been troubled with cough during the last two months. Dyspnœa, pain between the shoulders, heats and perspirations, feebleness, wasting and sickness, have successively accumulated upon the first symptoms, The frost, and the cold ward, seem to me to have repeatedly aggravated the disorders to the last.

On inspection, the body was of very moderate size, and slight, but pretty fully developed. There were no very evident marks of wasting or œdema.

The expanded pericardium was thin, and of great extent; it seemed very little, if at all, less in circumference than the crown of a hat.

The right auricle was moderately dilated and thickened in proportion to the rest.

The right ventricle was large and thick: the pulmonary artery was two inches and three-eighths in circumference above the valves.

The left auricle was most excessively dilated; its walls but moderately thickened, and its lining thick and rugous.

The fossa ovalis closed.

The mitral opening was very wide; the curtains opaque, and with the cords somewhat thick; the posterior curtain, more particularly, seemed also contracted.

The left bronchus was compressed into a very flat oval tube by the dilated auricle.

The left ventricle was about large enough to contain the girl's fist, and rather thin than thick.

The aorta was thick, and its lining much rippled for the age; its circumference above the valves was two inches and one-eighth. In this case it was evident to the finger, before opening the aorta, that it was narrow, as several were invited to feel.

The lungs were of a light colour,

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[*] These measurements were carefully taken among a considerable series, by Dr. Guy, of King's College, and Dr. Rankin, of Bury St. Edmonds.

considerably emphysematous, and nowhere devoid of air. Some small masses of lobules, chiefly in the right lung, were more red and watery; other parts, besides being watery, seemed spotted as with small ecchymoses: this was seen in sections.

The liver was large and indurated, and partially like nutmeg.

The spleen very small and firm.

The kidneys were much indurated, and their tunics thick and too adherent.

The ovaries were small, thick coated, and fissured, and speckled with little yellowish grains.

It can hardly be questioned that the last is a case of anormal narrowness of both pulmonary artery and aorta, and of the proper consequences of such obstruction, although somewhat different from the case preceding it.

By the general references which have been introduced to the principal morbid alterations found in connection with the disordered passages of the heart, it may be seen that whilst I regard the last as serious states, I do not mean that every thing ought not to be taken into the account in reasoning on the complicated processes which bring disease to its final termination. To those who are accustomed to reflect on the mutual dependence of every part of the circulation on the rest (even merely in a physical sense) these facts may serve as a means of judging of the particular importance of the states which I have mainly endeavoured to illustrate.

In conclusion it may be well to repeat, that these cases are brought forward in illustration of

1st. Narrowness of the aorta, and of the pulmonary artery.

2d. The communication of the ventricles.

3d. The sacciform depression or elongation of the fossa ovalis.

4th. The ulcerative perforation of the fossa ovalis.

The connection which may appear often to subsist between these several morbid states will suffice to draw attention to the physical state of the circulation in analogous cases. To comprehend fairly the relation of different parts of the circulation can alone help us surely in the indispensable treatment of its disturbances or disorganizations; and I venture to hope that the preceding statement, however defective, will assist to render the topics considered more correctly appreciated.

ON HIP DISEASE AND LUMBAR ABSCESS.

By Wm. Oliver Chalk, Esq.

Resident Surgeon to the Royal Sea-Bathing Infirmary, Margate.

(Continued from p. 723.)

(For the Medical Gazette.)

I had held my present situation for a short time only, before my attention was attracted to the numerous cases of diseased hip joint received at this infirmary; nor could I fail to observe that, although the symptoms and general appearances of these disorders seemed to differ but slightly, yet their termination was often entirely dissamilar: some, after years of protracted suffering, recovering the entire use of the limb and articulation, with no further traces of a once formidable disease, except, perhaps, slight contraction of the hip and knee joints, and the cicatrices of ulcers which at one time had formed the outlet to a large and deeply-seated abscess; others remaining crippled for life, or too frequently sinking under the severity of the constitutional and local symptoms.

It was scarcely possible in many instances to avoid questioning the diagnosis, for it was extremely difficult to conceive that perfect recovery could take place if disease had really existed within the cavity of the joint for a sufficient time to terminate in suppuration; for in that case structural changes must have occurred which would ever render the motion of the joint defective, and give rise to more or less irremediable deformity.

The complications which presented themselves in the latter stages of these disorders rendered the diagnosis exceedingly difficult, if not impossible. I was therefore obliged to study primary symptoms with great attention. Unfortunately, incipient disease was comparatively rare among in-door patients, whose cases naturally afforded the best opportunities for observation. With those out of the house it was more frequent; but it sometimes happened that their poverty obliged them to return home before due time had been allowed for a sufficient investigation of their symptoms. In this way I was often obliged to retrace my steps, and wait for further opportunities. The numerous cases, however, that were admitted each ensuing season from the London and provincial hospitals (chiefly from the former), and from private sources, afforded ample scope for further observation; and it soon became sufficiently obvious that the diagnosis of hip disease was more than questionable. I felt assured that a vast majority[*] of these cases were of lumbar origin; but the proportion was so large, that I determined to withhold my conviction until such time as I could confirm it through the medium of post-mortem inspections. This became absolutely necessary when I considered that many of these patients had been under the guidance and treatment of some of our most eminent surgeons.

It was not until the year 1833 that an opportunity offered of a post-mortem inspection, in the case of William Hopkins, ætat. 40, admitted May 14th, from the Oxford Infirmary, said to be labouring under diseased hip joint. On examination, I found several sinuses in the vicinity of the articulation and the upper and external part of the thigh, from whence proceeded a profuse and extremely offensive discharge of ill-conditioned pus. The limb was extended, rigid, and apparently shortened, and slightly turned inwards. Any attempt at movement gave severe pain. The integuments around the articulation were covered with numerous scars of cuppings, leeches, blisters, &c. which were highly sensitive, and materially aggravated the condition of the soft parts, already tense, swollen, and painful, from extensive subjacent disease. These symptoms were accompanied by great constitutional disturbance, viz. hectic fever, constant diarrhœa, great tenderness over the whole abdomen, more especially in the region of the liver, which was enlarged; pulse feeble and rapid; profuse perspiration. It was evident that he was fast sinking under the influence of accumulated and protracted disease. He died fourteen days after his admission.

On examination, the following appearances were observed[*]: the under surface of the gluteus maximus, and the subjacent layers of muscles connected with the joint, had lost all traces of normal structure, presenting a blackened appearance, and so softened as to be readily broken down by the fingers, or handle of the scalpel; their interspaces were occupied by a profusion of pus, similar to that which had been discharged during life. The capsular ligament was entire, and of a healthy appearance; on its inner surface the cavity of the joint was entirely free from disease. It was evident that the matter was issuing from a remoter source, namely, the loins; and I regret very much that, from unavoidable circumstances, time did not permit us to examine the state of the viscera, or to trace the abscess to this source. There could be little doubt of the fact, however, as I could, during life, produce a copious flow of pus through the external openings, by pressing on the abdomen in the lumbar region: at all events the diagnosis was confirmed, as far as concerned the state of the articulation itself[†].

Having thus more fully succeeded in clearing up my doubts, I proceeded in my investigation of these diseases without delay. The apparent similitude of the symptoms, however, for a long time baffled my endeavours; and I was often on the point of yielding to the difficulties which seemed to beset the inquiry. Sir Charles Bell is the only surgeon, so far as I have been able to ascertain, who alludes to the difficulties of the diagnosis[‡]; and I am happy to avail myself of such distinguished authority by transcribing his remarks:—

"The diagnosis is the grand difficulty, and I would require no better proof to give to any person of the interest I take in you, and the desire I feel of being useful to you, than that I should return to the subject of the hip joint, for be assured that there is none that you will find more difficult to investigate, or a greater source of anxiety." Again, he says, "I will not dwell on the next point, which is psoas abscess; you must take care, however, to distinguish psoas abscess from disease of the hip joint: and you have the more difficulty, because both diseases belong to the same condition of the general system, a strumous habit. You have visited several cases with me, when I have not concealed the difficulty I have had in saying whether the disease existed in the hip or in the loins, and the course of the psoas muscle."

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[*] With reference to this assertion, however incredible it may appear, I will take as example the season of 1836, when thirty-six cases of hip disease are reported (in a work already alluded to) to have been received at the infirmary. Out of the whole number at that time in the house, there were not more than eight cases of primary disease of the articulation; the rest were of lumbar origin, most of which had been treated as hip disease. I regret to observe that this statement has found its way into one of our standard works, Cooper's Surgical Dictionary, last edition.

[*] I was assisted in the dissection by my friend, Mr. G. H. Hoffman, of Margate.

[†] When speaking hereafter more particularly of psoas abscess, I shall have occasion to relate various dissections wherein the disease had been treated for an affection of the articulation.

[‡] Vide Clinical Lecture, as published in this Gazette, vol. 14.

In a subsequent article, the case of E. A. Hoffmeister, admitted into the Middlesex Hospital, supposed to be labouring under hip disease, is related, together with the appearances after death: both femora were found unmoved in their sockets, and it was further ascertained that this state was consequent on psoas abscess. Mons. le Baron Boyer, when treating of spontaneous consecutive dislocations of the femur, thus describes a dissection:—"*Les muscles de la fesse et de l'aine étoient disséqués par le pus, le capsule orbiculaire étoit détruite, et conservoit à peine quelques traces de sa structure fibreuse; toute la surface du col du femur étoit denudée, la couche cartilagineuse detruite, la cavité cotyloide fort aggrandie par une érosion qui en avoit emporté le fond et surtout la partie interne de sa circonference, sur laquelle la tête du femur était placée, le pus avoit détruit le muscle releveur de l'anus, et fusée le long du muscle psoas jusqu'aux lombes, il sortoit du bassin avec ce dernier pour communiquer avec les foyers exterieurs, ceux-ci s'étendoient par une fusée jusqu'au genou.*" It is evident that the appearances here described originated in psoas abscess, for it cannot be imagined that the pus should have ascended from the hip joint along the course of the psoas muscle.

Before entering on a description of the respective local symptoms which characterise these disorders, I am anxious to make some observations on the diathesis with which they are commonly associated, viz., the scrofulous, tubercular, or phthisical. Whenever tubercular matter was localized in other structures than the lungs, M. Laennec used the term "i thisis;"
seeming to imply that
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lungs is frequently associated with a similar state of other organs of the body, as well as with a more or less morbid condition of the digestive and nutritive, viz., the stomach, liver, small intestines, &c. From the state of the latter viscera alone, M. Louis could with certainty infer the presence of tubercles in the lungs.

It is not my intention to enter on a discussion of phthisis any further than is necessary to my present subject, with which it is unavoidably connected, lest I should lay myself open to the charge of presumption, since it has for so long a time occupied the pens of the most distinguished writers in this and other countries, and of whose labours I can only profess myself the humble admirer.

The term latent phthisis, it would appear, has been used by writers to denote that state of the system which existed prior to the sudden development of phthisical symptoms, upon any accidental and existing cause, such as bronchitis, common catarrh, febrile attacks, &c., thereby admitting the presence of tubercular depositions prior to the invasion of these accidental diseases. A singular instance of this description came under my observation whilst following the clinique of Mons. Le Baron Dupuytren, at the Hôtel Dieu, in the winter of 1828 and 29, which made a forcible impression on my mind at that period. A fine looking youth, between 16 and 17 years of age, presented himself one morning for examination. He stated that he had been suffering from a withered state of the right lower extremity from his infancy, that his health was excellent, yet he and his friends were desirous that he should undergo amputation of the limb, giving as a reason that it was in his way. M. D. hesitated, observing that these affections were commonly associated with "un vice constitutionel," which he feared in this instance might render the operation abortive. The boy and his friends persisted. He was received a day or two after, placed in bed, and was subjected by Mons. D. to a most careful examination of the abdominal and thoracic viscera. The ult seemed favourable, and the opera-
was performed on the following
ith the usual dexterity of that
lished surgeon: great care was
avoid any unnecessary loss of

blood. The night previous to the second dressing of the stump, the patient suffered from an accession of fever, and complained that the dressings caused pain: on the following morning (being the fourth from the operation) they were removed: no attempt at union had taken place; the wound was ash-coloured and gaping, exhaling a profuse and fœtid sanies; symptoms of phthisis rapidly ensued, and the patient died about 14 days after the operation.

[To be continued.]

MR. COULSON'S REPLY TO MR. CHALK.

To the Editor of the Medical Gazette.

Sir,

I have read in your last number a communication from Mr. Chalk, in which he has alluded, in a tone and spirit that I shall not imitate, to my works on the Diseases of the Hip-Joint.

Mr. Chalk complains that many of the alterations and additions in the second edition of my work consist in observations and allusions to the practice pursued by him in these disorders at the Royal Sea-bathing Infirmary, without acknowledgment of the source from whence they were derived.

Except the letter from Mr. Childs, which I shall presently refer to, it so happens that all the allusions to the practice in the Infirmary in question, in my last edition, are contained in the previous edition; and it may be inferred from the silence of a person of Mr. Chalk's temper for five years, that no injury was done him by that previous edition. Why there was no acknowledgment to Mr. Chalk is sufficiently explained by his own statement, that, in reply to written inquiries (some of them such as may be reasonably required in courtesy to be answered by the paid surgeon of a public institution) concerning the results of cases in the Infirmary, he declined to give me any information. A reference to my work will shew, which has not been questioned by any one but Mr. Chalk, that I have acknowledged the sources of my information with more than ordinary care.

Mr. Chalk has introduced several passages from my edition of 1841, to show, as he expresses it, that "I have picked up a respectable stock of information;" manifestly wishing it to be inferred that it can only have been derived from his quarry. It so happens that all the passages referred to by Mr. Chalk will be found in substance, and for the most part in the very words, in my former edition, which was published towards the end of 1836. For example, the passages quoted by Mr. Chalk are:

Second Edit. 1841.	First Edit.* 1837.
Page 5 ———	Vide page 74.
—— 34 ———	——— 72-73.
—— 57 ———	——— 11.
—— 75 ———	——— 86.
—— 89 ———	——— 94.

My letter, dated April 22d, 1836, which Mr. Chalk has published, contains several interrogatories respecting the disease of the hip, and on this account Mr. Chalk very sagaciously assumes that I was then ignorant of the disease, and that I had no views or opinions of my own upon the subject of my questions. This scarcely needs a remark; but I may tell Mr. Chalk, that, six years and a half before I sent my interrogatories to him, I had published on the disease of the hip; and at the time of sending my letter the materials for another work were then in a state of forwardness for the press.

The residue of Mr. Chalk's letter consists in great part of a complaint against Mr. Childs for having communicated to me respecting the practice of the Infirmary, which I have acknowledged and printed, and against me, I presume, for having published it. With the personal accusation against Mr. Childs I have nothing to do; but I have yet to learn that it is in any degree improper for a gentleman connected with a charitable institution to publish the result of any mode of treatment which he may consider beneficial.

If I were to give Mr. Chalk any advice, it would be, that, instead of complaining of Mr. Childs or myself for publishing information which we think valuable, he should at once contribute what he can to the common stock of information, and trust his claims to reputation to the judgment of the profession.—I am, sir,

Your obedient servant,
William Coulson.

Frederic Place, Feb. 8, 1841.

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* The preface to this edition is dated October 8th, 1836.

MEDICAL GAZETTE.

Friday, February 12, 1841.

> "Licet omnibus, licet etiam mihi, dignitatem *Artis Medicæ* tueri; potestas modo veniendi in publicum sit, dicendi periculum non recuso."
> CICERO.

MEDICAL DEGREES.

MARISCHAL COLLEGE, ABERDEEN.

AMIDST the numerous projects for change in the medical institutions of the country, brought forward within the last few years, it is satisfactory to observe the many valuable improvements which these institutions have themselves seen fit to introduce. Nor is this change for the better any where more conspicuous than in Scotland.

There, until very recently, the ease with which medical degrees could be obtained was proverbial; and it must be confessed that they frequently were bestowed, at least in some of the seats of learning, in such a manner as to give too much countenance to the vulgar belief, that the bodies conferring them had an eye mainly to the fee derived from their diploma, or, as it was illiberally expressed, were bent on bartering their LL.D. for L. S. D. Edinburgh, indeed, was an exception, and, we may add, not the only exception, to the general rule; and the many distinguished names to be found among its graduates at once evince and account for the higher value attached to its degrees.

But those who look into the matter, as it at present stands, will find a very different order of things. The Edinburgh degree has less weight than of old, not from the standard of qualifications having been lowered, but owing to the higher scale of attainments demanded from candidates by other institutions. The alterations alluded to have not been hastily engrafted on the former system, nor have all been equally prompt to carry them into effect. But the "Regulations of the Marischal College and University of Aberdeen," inserted elsewhere*, complete the series of change, if not of unqualified improvement. To some of these provisions, as bearing upon Scotch degrees in general, we would briefly invite the attention of our readers:—

In the first place it will be observed, that, of the four years to be spent in medical study, "three, at least, must be passed in a University, including one, at least, in this University." Now Marischal College is not singular in imposing, or rather continuing the imposition of this, as we must term it, illiberal restriction. But we had hoped to see, in a newly revised set of Regulations, some relaxation in this important point; considering, as we do, that whatever may be deemed necessary in the way of preliminary general education, yet, if certificates of attendance on all the prescribed courses of medical lectures are produced from any of the acknowledged metropolitan or provincial schools, one year might very safely be made the whole period of University attendance exacted. The one year of attendance in Aberdeen is, however, to be all that is required of those who possess a diploma from any licensing body in the kingdom. What reception, then, awaits these gentlemen, thus comparatively mature in years and knowledge? A catalogue (*crediti posteri!*) is to be called over at the beginning of each lecture†; at the end of every month the number of times each student has been absent is to be hung up in the class room: and at the end of the course the total number of absences is to be notified by the Professor on the back of each certificate. Imagine a member of the Royal College of Surgeons, who hopes to be M.D. within a few months,

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* See page 767.

† This is mentioned in a minor paper of regulations of detail, which we have not room to print.

> "Creeping, like snail, unwillingly to school."

It is not thus that lecture-rooms can be filled; even the junior medical students are of an age to which such treatment is wholly inapplicable.

Another point in which the case before us agrees but too closely with that of some other learned bodies, is the very short period of attendance on hospital practice which it requires. If the time to be dedicated to the acquisition of medical knowledge were considerably extended, eighteen months' hospital attendance (which includes both medical and surgical practice) might be deemed sufficient; because the probability of the student's having had opportunities of seeing the practical part of his profession elsewhere would in that case be proportionably increased. But where only four years of study altogether are required, it should be made imperative, in every case, to adduce positive testimony of a considerably longer attendance: and we tremble for the limbs and lives of those who shall be dealt with by persons so inadequately prepared.

Another point seems very objectionable. The number of subjects, on which the candidate is to be examined, shews a wish to establish a high standard for degrees; yet some of the rules must wholly defeat this object. In the first place, direct encouragement is held out to students to begin their attendance on medical classes before they have completed the usual course of College education—a practice what has crept in of late years, and with very unfortunate consequences. The general education of the student is interrupted just at the age when, if good for any thing, he is making the most rapid progress in liberal knowledge; and he is induced to make this grave sacrifice without any suitable return. Besides, this interferes with medical education itself; for if we require only four years' study altogether, we cannot assuredly expect to find men highly qualified, if one or two of these four are divided between medicine, and the important subjects which the last two winters at College present to the consideration of the student.

Again, the plan of having three separate examinations for the degree, and allowing to such as choose to avail themselves of it an interval of eighteen months between each, is most objectionable. The consequence will inevitably be, that students will *cram* for the first examination to the neglect of every thing else; then *grind* for the second; and both *cram* and *grind* for the third. The number of subjects on which they are to undergo at each stage a very lengthened examination, will infallibly lead to this most pernicious result. The effect of the whole will be, that, at the time they take their bachelor's degree, they will be acquainted only with the subjects to which their attention was last directed, while the others will have been in great measure dismissed from their memory. Are these anticipations groundless? No. Cramming is found to be an almost universal practice, in spite of all precautions.

It is a rule to which we know no exception, that the candidate must at least possess, at the time he receives his diploma, that which his diploma declares him to *have*, not to *have had*, a competent acquaintance with all the leading branches of professional knowledge; whereas this system will enable the examiners to certify rather how much he has forgotten than how much he knows.

But what strikes us most of all in these regulations is, the extraordinary and novel circumstance, that the degrees are to be given *gratis;* that is, the degree of M.D. for £11, being £10 for the stamp, and £1 for the expense of preparing the diploma; and the degree of M.B. for £1, the mere expense of the diploma, no government stamp being required.

At all other places where degrees, licenses, or diplomas are granted, the labourer is deemed worthy of his hire: the honour is not so obtruded on the public as to make it seem that the granter, not the receiver, is the person obliged in the transaction. These are important passports for professional men, and imply the assumption of a very grave responsibility by the learned body which pledges itself for their competence. The fees are generally on such a scale as not to subject such learned bodies to the imputation of voluntarily courting this responsibility, and going out of their way to vouch for the acquirements of all comers. Why, then, should *this* institution depart from the common practice? It may be said that Marischal College, Aberdeen, looking back with little satisfaction to its former indiscriminate issue of degrees, and wishing in vain to erase from its list Drs Solomon and Brodum—the least favourably known of its graduates—

> "Sed revocare gradum,
> Hoc opus, hic labor est;"

has adopted a scale of payment "which may serve altogether to remove every suspicion of there being any thing like self-interest in their motives*." But this is not so; for every candidate for a degree must have passed one year at least in the medical school of the College; so that the whole resolves itself into an expedient for drawing students away from the medical school of the University and King's College (which, like other universities, charges fees upon degrees, and which does not make attendance at its own medical school an indispensable preliminary)—by offering gratuitous degrees at the end of the course.

There is, however, another peculiarity about these degrees, which it nearly concerns the honour of the profession to notice, especially at a time when it is proposed to confer certain privileges on all graduates of British universities. We have grievously wronged Marischal College in saying that her degrees are gratuitous. They are not so; they are too dear by £10, being the amount of the government stamp, *for they are not degrees at all*, and are worth no more than the parchment and wax of the diploma.

We speak advisedly. We have now lying before us all the charters, acts, and muniments of Marischal College, printed by the Royal Commissioners for visiting the Scottish Universities, from returns made by Marischal College itself. We write on the authority of these documents, and of the acts of the Scottish Parliament.

Soon after the Reformation, a College was founded in Aberdeen by the Earl Marischal, and its foundation was ratified by Parliament, over and over again, as a free College, consisting of a faculty of arts, without any faculty of theology, of law, or of medicine, and it was empowered to confer degrees in arts, but it never was created a University, and never received any shadow of authority to confer any degree except in arts; and no wonder, since the University and King's College had already flourished in the neighbourhood for a century, with all the faculties complete, and the fullest powers to confer degrees in each.

It is believed to have been about the year 1728 that Marischal College, crowning itself—like Napoleon at Nôtre Dame—was pleased to confer on itself the power of conferring on others the degree of Doctor in theology, law, or medicine. The degree of B.M. is of new coinage, and has not, so far as we are informed, been yet conferred.

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* Aberdeen Herald.

It is well known that any privilege which can only emanate from the crown, must be exercised either by virtue of an actual charter, or by immemorial prescription; that is, custom of which the commencement cannot be traced, and which is therefore attributed by law to an ancient grant from the crown. Marischal College has been created far within the period of prescription; it can point out no such grant, and can show no such custom. But, it is said, others have acquiesced. Now it is very difficult and invidious, and is no man's business in particular, to pluck off such borrowed plumes. People at this end of the island, aware of the fact of there being a University at Aberdeen, took it for granted that an Aberdeen degree was a degree conferred by the University, but it is merely absurd to say that the acquiescence of neighbours, or of the public, (supposing it to be true that there has been acquiescence) can confer so important a right. If Marischal College had created baronets as well as doctors, a step equally justified by their charter, would the contemptuous silence of the public erect this usurpation into a right? Any ten gentlemen who choose to seat themselves round a table have exactly the same power. The College then, in its new scale of fees; has unconsciously estimated its degrees at their real value—*nothing.*

MR. BACOT ON MEDICAL REFORM.

To the Editor of the Medical Gazette.

SIR,

So much has lately been written on the subject of Medical Reform, that even members of the profession itself may probably be wearied with the discussion; yet, perhaps, your readers may be disposed to bear patiently with one more labourer in the same field, who promises to be concise.

Having for many years been actively engaged in considering the details of medical education and examination, I trust that the few observations I shall venture to offer regarding this *vexata questio* will at least be favoured with an attentive perusal.

In considering the subject of medical reform, the first party to be satisfied is the public; they should have the fullest assurance that the practitioner in each branch of the profession is a competent person, not only from his medical qualifications, but from his general education, which can alone entitle him to hold the station in society which is his due, and that will give to the public something like a security that he will practise his profession, not merely for lucre, but upon those high and honourable principles that should actuate the members of all the liberal professions.

To maintain this high moral tone in the profession, subordination in its different departments is, in my opinion, requisite: giving to the lower grade a fair object of ambition, by leaving the road to his advancement entirely open, and inducing the higher grade to maintain his rank by superiority of attainments as well as by the integrity and purity of his character and conduct. It therefore appears to me extremely objectionable to propose the adoption of any plan which shall amalgamate the different orders of the profession into one faculty, and still more so to create elective bodies of any large amount in point of number; keeping the profession in a state of perpetual agitation, increasing the acrimony and ill feeling which professional rivalry always tends to engender, and probably, as a result, bestowing the official appointments of the profession upon the most obstinate, or, it may be, upon the most impudent candidate.

It is true that the number of institutions in the three kingdoms, now authorised to grant diplomas or licenses to practise in the different departments of the profession, is considerable, and that the most absurd restrictions exist to prevent the person licensed in one part of the empire from practising in any other part. The first step in reform would be to assimilate the education and examination in the three kingdoms to one uniform standard; that is, let there be one system for the physician every where throughout the empire; one for the surgeon and one for the apothecary; and then let no impediment exist to prevent the practitioner (wherever licensed) from pursuing his calling in whatever part of the empire he choose, only providing that he shall be duly registered as a licensed practitioner in the country in which he practises. Then, as a consequence of this arrangement, all prosecutions of unqualified practitioners should cease, and nothing would be necessary but to ascertain that the party was duly registered before he was allowed to undertake the office of physician, surgeon, or apothecary, to any public institution, or before the latter class of practitioners could obtain a remuneration for his services in any court of law.

If these great preliminaries were assented to (and I believe the three corporations in England are perfectly agreed on these points) nothing would be easier than to settle the minor details, and all reasonable men would, I conceive, be ready to admit that the present medical institutions of the country are competent to undertake the duties of their respective departments, and need not be destroyed in order to build up a something which would, at no distant period, assume a political character, and, whether it did so or not, would, at all events, keep a profession requiring contemplation and repose in a continued state of agitation; exciting those passions which it is the duty of all good men to allay, and retarding, instead of promoting, the interests of humanity and science.

I also contemplate, as a completion of this scheme, the formation of a fourth or controlling body appointed by government (not consisting of medical men); to which body the several institutions should communicate their respective bye-laws and regulations for approval, and to which they should also annually report the results of their proceedings—the number of persons admitted to examination in their respective departments, the number rejected, the amount of their receipts, the mode in which the money has been expended, and all other circumstances from which a complete statistical account of the state of the profession might be collected from year to year.

Another subject of complaint in the profession is, the extent to which the chemist and druggist now assumes the duties of the regular practitioner; and to the apothecary, at least, the evil is very great, who, being obliged to undergo an expensive education, and a strict investigation of his medical qualifications, when he commences his career as a practitioner is met at every turn by the chemist, who, with his collection of prescriptions and his smattering of knowledge, visits and prescribes, with all the authority of an Esculapius: not only does he give advice from behind his counter, but he scruples not in too many instances to assume out of doors all the functions of the medical man; and yet I doubt the propriety of meeting this abuse by any medical interference. It is quite obvious that one principal point in medical reform would be to keep every man in his place, to confine the practice and business of each man to his own department; and this, with the aid of government, might easily be done in this case; providing, however, that the chemist and druggist should give some proof, before he is established in his business, that he knows enough to ensure the safe and accurate composition of remedies prescribed by medical authority. As to any attempt to put down quacks and other pretenders to cure diseases, the notion is absurd: as long as there are complaints that defy all our present curative processes, so long must there be quacks and venders of such remedies. Mankind will never sit down contented with being told they must die of cancer or phthisis; they will naturally resort to any one, male or female, who offers an infallible remedy; and why should they not? Is it wise, or even possible, to extinguish hope by an Act of Parliament? and, after all, the profession itself is, perhaps, the gainer by the system, if so low a motive be permitted to enter into our consideration at all.

With regard to the curricula of study now enjoined by different medical bodies much might be said, but it may be enough for my purpose to intimate my belief that in some instances these curricula are too stringent. Too much time is devoted to lectures, and not enough to reading; and, to hospital practice, the student is taught rather *jurare in verba magistri* than to work out his own course, and to rely upon the resources of his own mind. I have no objection to make the examination as strict as possible; the student should be informed accurately of the subjects he is expected to know, as well as the course and general tenor of examination: a certain order of study might also be recommended as most suitable to be pursued; but I doubt the propriety of insisting upon a constant and compulsory application.

One word only respecting the apprenticeship. Every one who has practised pharmacy, especially in the country, must know that the time spent by the apprentice is far from being wasted; it is employed in collecting information which is most valuable to the student in after life; but a period of five years so employed is much too long, still less should the apprenticeship be compulsory, for if good in itself it will be followed without any legislative enactment, but it should be left at least to the choice of those who still entertain such an opinion: it would be quite sufficient if the pupil was required to receive instruction in practical pharmacy for two years either as an apprentice or not. I shall not pretend at present to enter further into the details of this very extensive subject, being persuaded that if the general outlines I have hinted at are carefully filled up, the expectations of all reasonable men would be satisfied.

I am, sir,
Your obedient servant,
John Bacot.

Portugal Street, Feb. 4, 1841.

ADVANTAGE OF APPRENTICESHIPS.

To the Editor of the Medical Gazette.

Sir,

I hope you will spare room, in your valuable periodical, for a few remarks elicited by your able leader on the "Apprenticeship System" in the last Gazette, and ere the knell of that system is sounded, allow a feeble note to be raised in its praise. You are doubtless aware, Mr. Editor, that the effect of the late prescribed course of medical education has been to diminish very materially the number of pupils in the country, and the smaller towns; and, if the apprenticeship system be entirely annulled, all the medical students will begin and complete their studies in the metropolis, or the larger provincial towns where the required lectures are given. But would not a serious injury be thus inflicted on the smaller hospitals and country practitioners? The cases occurring in those institutions would not be rendered available for the purposes of medical education, and thus many valuable opportunities of acquiring knowledge would be lost; for it is not, perhaps, too much to say, that the few pupils who act as dressers in a provincial hospital, under the immediate eye of their masters, are as likely to acquire valuable information as those students who, in a crowd, attend the practice of the larger hospitals without an opportunity of exercising surgical manipulation; and the "habit of observing, thinking, and acting for himself," which, by the *Quarterly* is considered so essential to make a good practitioner, is as much encouraged in him who quietly dresses patients from day to day, in a smaller provincial infirmary, as in him who, during the bustle of surgical peregrinations in large hospitals, attends, even more than is customary, to the cases presented to his notice: and I would, moreover, add, the responsibility incurred by visiting and prescribing for the patients who partially come under the care of pupils in the country during their apprenticeship, excites more interest, and enforces habits of attention and reflection more effectually, than where such responsibility does not exist.

But the student who is designed to practise in the country (and many must) will be, in other respects, a loser by the entire abrogation of the apprenticeship system. He will lose all that salutary restraint, and that training of the mind to undergo privations, which are so necessary for youth. He will lose an insight into the management of private patients—the customary charges and book-keeping, and all the drudgery unavoidably connected with the practice of medicine, in country districts. He will be unable to form an estimate of the situation which he must afterwards fill, or of the difference between the study of medicine as a branch of learning, and the practice of it as a profession by which he is to live; so that, when commencing business in the country, after an attendance on lectures and at hospitals alone, where he has been enabled to follow the full bent of his inclinations, he will probably find that he cannot comfortably submit to the necessary constraint on his feelings and actions which would contribute so much to his success; that he cannot well manage the whims and caprices of private patients, and other little practical details; that, in short, he cannot endure, without spending a miserable existence, the inconveniences and ills of a profession which he was not prepared for; while, to his astonishment, his more plodding, but, perhaps, less scientific neighbour, inured to the hardships of an apprentice, bears the midnight watch and laborious journeys with scarce a murmur, and puts up with those toils and discomforts which, in early life, he was accustomed to, as a matter of course. There is, indeed, Mr. Editor, something besides medical knowledge necessary for ordinary provincial practice, namely, a mind schooled and trained to submit to that which must be borne; and if the apprenticeship system must be given up, which, under your auspices, I trust it will not, I much doubt whether the country practitioners of the succeeding generation will be more happy themselves, better suited for their situations, or for the service of the public, than those of the present day. But I am trespassing too much on your kindness; and therefore, hoping that the attention of provincial practitioners will be awakened to the subject I have touched upon, I leave the matter in abler hands.—I am, sir,

Your obedient servant,
A Constant Reader.

Gloucester, Feb. 2d, 1841.

PROPOSED RESTRICTIONS ON FOREIGN GRADUATES.

To the Editor of the Medical Gazette.

Sir,

As a constant reader of and occasional contributor to your valuable journal, I shall feel much favoured by your giving me a reply to the following question, in which is deeply involved the interest and happiness of many highly talented and respectable practitioners:—

Will certain restrictions, which are about to be proposed respecting foreign graduates, extend to those in *actual practice?*

About fifteen years since I attended lectures and hospital practice at Paris and Berlin, and ultimately graduated at the ancient and distinguished seat of learning, Giessen, in Germany, having been subjected to a most severe examination. Since this period I have been in very limited practice, but having at length been appointed medical officer to an extensive dispensary, I am led to believe that brighter prospects are opening to me. I find, however, from the tenour of certain bills, which are immediately to be laid before Parliament, that it is doubtful whether any foreign graduate will be admitted as a member of the new medical corporation, unless he proves that he has undergone the *prescribed* medical education, and submits to an *examination*. Now I must confess that I have not attended to any particular curriculum, but obtained my professional education from those sources, and in that manner which I conceived best calculated to render me acquainted with my profession. With respect to an examination, I am rather sceptical as to whether I should be considered sufficiently versed in minute anatomy and chemistry, which, at the time I was pursuing my university studies, I was as conversant with as my own name, but which now, I fear, I have in a great measure lost: my (almost) undivided attention having been bestowed on the *practical* part of my profession. Many years since I was considered a good Latinist, but should now falter at translations which then appeared as easy as A B C; so little time have I had to cultivate my classical knowledge, amid the many perplexing troubles and anxieties I have had to contend with. You are doubtless aware that not *one* in *fifty* physicians now practising in London and the provinces are members of the London College: the majority being licentiates of the Irish, German, and Scotch universities. It, therefore, appears to me that it would be a decided injustice to prevent foreign graduates, more especially those in *actual practice*, from becoming registered members of the new medical institution. It would also be bad policy for the medical profession in this country to oppose this principle, for very few natives of foreign countries, who had graduated abroad, whatever might be their qualification and their skill, would be able to overcome the antipathies of the people of this country to employ them in their families, so as to succeed here to any great extent; on the contrary, there is a great demand for British physicians in foreign countries, both in those cities which are principally frequented by British travellers, and, generally speaking, by all classes in the United States; and the demand presents opportunities of employment to a great number of young graduates and holders of diplomas, who annually swarm off from the British hive. Now any exclusion of foreign graduates in this country might provoke foreign countries to retaliate on British subjects practising medicine abroad, and the balance in that case would be greatly to the prejudice of British practitioners. When I commenced practice I legally possessed the same privileges as the licentiate of any college or university; and these privileges still exist. Under these circumstances I feel well assured that the educated foreign graduate will find in you an able and unflinching advocate for the *continuance of those rights which they at present enjoy*. I doubt not but that in several instances diplomas have been unworthily obtained, both from the Scotch and German universities, but I believe this system has not prevailed to any great extent; and I cannot but think that it would be unwise to interfere with the *present holders* of even these venal degrees. Let the iniquities of the past be buried in oblivion, but most carefully guarded against in future enactments.

These hastily penned observations are sent with the view of directing your attention to the subject, and with the hope of seeing an answer to the foregoing question, which has been submitted to you, with great respect, by

Your obedient servant,
AN M.D.
Of twelve years standing.

Feb. 1, 1841.

[We have inserted the foregoing letter not at all as patronizing foreign degrees, but to direct the attention of those who are about to legislate to the important consideration—what effect will it have on those holding *our* degrees, when they go abroad, if we refuse to acknowledge foreign degrees here?—ED. GAZ.]

MARISCHAL COLLEGE AND UNIVERSITY OF ABERDEEN.

REGULATIONS FOR GRANTING MEDICAL DEGREES.

Curriculum.

1. Four years of attendance on Medical Classes, of which one year may be passed at any recognised Medical School; but three, at least, must be passed in a University, including one, at least, in this University. The attendance, in each year, to embrace not fewer than two medical classes of six months each, or one of six months, with two of three months each. But it will be held equivalent to *one* of four years of such attendance in a University, 1st, in a Master of Arts, to have attended one Medical Class while passing through the Curriculum of Arts: or, 2dly, in any Student, to have attended a Medical Class, in each of two years, along with Classes in the Curriculum of Arts. The University attendance to include the following eight Classes, each for a Course of six months—Anatomy, Practical Anatomy, Chemistry, Materia Medica, Institutes of Medicine, Surgery, Practice of Medicine, Midwifery, and the following three Classes, each for a Course of three months—Botany, Practical Chemistry, Medical Jurisprudence.

2. Eighteen months of attendance on the Medical and Surgical Practice of an Hospital containing not fewer than eighty beds, along with attendance for six months on Lectures on Clinical Medicine, and for three months on Lectures on Clinical Surgery.

3. Six months of compounding and dispensing of medicines in the laboratory of an hospital, or of a public dispensary, or of a licensed general practitioner, or of a regular dispensing druggist.

Exemption to Practitioners.

4. It will be held equivalent to the Curriculum prescribed in the three Regulations foregoing, to have obtained, upon examination, a Diploma or a License, in Medicine or in Surgery, from a University or other authority established by law within the United Kingdom, and to have subsequently attended Medical Classes in this University for one year.

Examinations.

5. The Examination Terms to be two in each year—the *first* to commence on the 20th of April, if a Wednesday, but if not, on the first Wednesday thereafter; the *second* on the 13th of October, if a Wednesday, but if not, on the first Wednesday thereafter.

6. Every candidate to undergo at least three separate professional examinations—the first Pharmaceutical, the second Surgical, the third Medical—to be conducted partly in writing, as well as *vivâ voce*, and partly by demonstration.

The *first* to include chemistry, botany, materia medica, pharmacy, and the doctrines of physics relating to specific gravities, to gases and vapours, and to climate.

The *second* to include anatomy, institutes of medicine, surgery, and the doctrines of chemistry and physics illustrative of animal structure and function.

The *third* to include the practice of medicine, midwifery, and medical jurisprudence.

7. Every candidate, not a Master of Arts, must undergo a preliminary examination on the Latin language (the book to be used being *Celsus de Medicinâ*), and on the etymology of such terms in the Medical Sciences as are derived from the Latin and the Greek.

8. Any candidate that so desires shall be admitted to each one, or to any two, of his three professional examinations at different terms; but not to the first examination, until the beginning of his third year of medical classes; nor to the second, until the end of his third year; nor to the third, until the end of his fourth year, and until he be twenty-one years of age; nor shall a greater interval than eighteen months be allowed between two successive professional examinations, without a full renewal of the previous one or two. The preliminary examination must be passed at the same term as the first professional examination.

9. In order to be received for examination, certificates must have been lodged with the professor of medicine, on the first day of the month of the examination term, shewing that the candidate is of the required age, that he is of good moral character, and that he has passed through the requisite course of professional education. Along with such certificates, must be lodged a schedule, filled up in his own hand-writing, containing a list of them, and specifying such additional

branches of education, professional and general, as he may have studied.

Conferring of Degrees.

10. Medical degrees to be conferred at the close of each examination term.

11. The degree of bachelor of medicine may be conferred on any candidate who has passed the foregoing examinations.

12. The degree of Doctor of Medicine may be conferred on any candidate, after passing the foregoing examinations, if not under twenty-two years of age, or on any candidate who has been at least six months a bachelor of medicine of this University. The candidate, if a bachelor, shall state in a written application, what opportunities of professional improvement he has enjoyed since he was made bachelor.

FEES.

For the Degree of Bachelor of Medicine.

Expense of Diploma . . £1

For the Degree of Doctor of Medicine.

Expense of Diploma . . £ 1
Government Stamp . . 10—£11

There are no Examiners' Fees.

SIR ASTLEY COOPER.

We lament to say that we cannot report any improvement in Sir Astley Cooper's health. We understand that the symptoms shew no disposition to amend.

REFORM DEPUTATIONS.

Deputations from the "British Medical," the "Provincial Medical and Surgical," and the "North of England Medical" Associations, waited on Lord John Russell on Saturday (6th). They were accompanied by Mr. Serjeant Talfourd, Mr. Wakley, Dr. Webster, Messrs. Evans, Farr, Carter, and Eales. Of the result we know nothing, but we shall be surprised if the ministers be not fairly bothered by the contradictory representations made to them by the various parties interested in the question of reform.

APOTHECARIES' HALL.

LIST OF GENTLEMEN WHO HAVE RECEIVED CERTIFICATES.

Thursday, December 31, 1840.

Edmund Hartley.—Duckworth John Nelson, Dubin.—William Pearse, Exeter.

Thursday, Jan. 7, 1841.

R. M. Hiddleston.—J. Honeywood, London.

Thursday, Jan. 14, 1841.

J. Osborn.—M. H. Beaumont.—A. Featherstonhaugh.—J. M. Monteath, London.

Thursday, Jan, 21, 1841.

H. F. Brett, East Garden, Yorkshire.—W. Winship, Newcastle-upon-Tyne.—W. Row, Shaldon, Devon.

A TABLE OF MORTALITY FOR THE METROPOLIS,

Shewing the Number of Deaths from all Causes registered in the Week, ending Saturday, the 30th January, 1841.

Small Pox	64
Measles	15
Scarlatina	11
Hooping Cough	49
Croup	8
Thrush	8
Diarrhœa	7
Dysentery	1
Cholera	0
Influenza	2
Typhus	26
Erysipelas	9
Syphilis	0
Hydrophobia	0
Diseases of the Brain, Nerves, and Senses	173
Diseases of the Lungs, and other Organs of Respiration	350
Diseases of the Heart and Blood-vessels	22
Diseases of the Stomach, Liver, and other Organs of Digestion	77
Diseases of the Kidneys, &c.	6
Childbed	18
Ovarian Dropsy	1
Diseases of Uterus, &c.	3
Rheumatism	6
Diseases of Joints, &c.	2
Ulcer	0
Fistula	0
Diseases of Skin, &c.	0
Diseases of Uncertain Seat	114
Old Age or Natural Decay	103
Deaths by Violence, Privation, or Intemperance	30
Causes not specified	2
Deaths from all Causes	1107

METEOROLOGICAL JOURNAL.

Kept at Edmonton, *Latitude* 51° 37′ 32″ *N.*
Longitude 0° 3′ 51″ *W. of Greenwich.*

Feb.		Thermometer.		Barometer.	
Wednesday	3	from 14 to	27	29·87 to	29·90
Thursday	4	11	28	29·75	29·62
Friday	5	16	29	29·68	29·65
Saturday	6	22	29	29·62	29·58
Sunday	7	19	27	29·48	29·36
Monday	8	21	29	29·32	29·38
Tuesday	9	14	27	29·87	29·90

Wind, N.E.

Except the afternoon of the 3d, and morning of the 5th, cloudy. Snow on the 3d, and morning of the 4th. Rain fell on the morning of the 8th.

Charles Henry Adams.

NOTICES.

Mr. Childs' letter cannot be inserted of its present length and form, except in the *extra limites* department. If he will limit himself to a simple counter statement not exceeding a column in length, we shall give it next week.

Mr. Watson's letter only arrived as we were going to press; we shall give it in our next.

Wilson & Ogilvy, 57, Skinner Street, London.

THE
LONDON MEDICAL GAZETTE,
BEING A
WEEKLY JOURNAL
OF
Medicine and the Collateral Sciences.

FRIDAY, FEBRUARY 19, 1841.

LECTURES
ON THE
PRINCIPLES AND PRACTICE OF PHYSIC,

Delivered at King's College, London,

BY DR. WATSON.

LECTURE XXII.

Symptoms of cerebral diseases.—Inflammation of the dura mater and arachnoid, from external injury; from disease of the bones of the ear, and of the nose.—Inflammation of the pia mater.

THE functions of the brain, summarily expressed, being sensation, thought, and voluntary motion, we naturally look for disturbances of those functions whenever the organ suffers disorder or disease. And experience has made us familiar with various forms of disturbance to which these same cerebral functions are liable. Let us pass them shortly in review.

1. The faculty of *sensation* may be morbidly keen, or morbidly obtuse; or it may be perverted: in other words, it may deviate in degree, or in kind, from the healthy standard.

The sensations referred to the several surfaces and structures of the body, and to the organs of sense, may (without any fault in those parts and organs) be preternaturally acute. Tenderness ascribed to different parts, their natural sensations being heightened into pain; a general state of irritability; intolerance of light, and of noise; are so many instances of this over-sensitiveness of the percipient organ.

Under the head of diminished or defective sensation may be ranked, numbness in all its degrees, up to total loss of sensibility or *anæsthesia;* dulness of hearing, deafness; dimness of sight, blindness; failure, or absolute extinction, of the senses of taste and of smell.

Perverted sensations, sensations unnatural in kind, are very numerous. To mention a few: giddiness; nausea; ringing in the ears; ocular spectra; ill smells in the nostrils; false tastes on the palate; itching; and sundry uneasy feelings, many of which are indescribable. Various kinds of pain belong to this class; spirits violently high; causeless depression, anxiety, and dread.

2. Innumerable degrees and varieties of disturbance of the faculty of *thought* are met with. Delirium in all its shades; dulness and confusion of intellect; sundry defects of memory; incapacity of judgment; and every degree of stupor up to complete coma.

Of the function of *voluntary motion* there are also various kinds and gradations of derangement: twitchings of the muscles; tremors of the limbs; rigidity from spasm; irregular and involuntary jactitation; convulsions; muscular debility; palsy.

Now, as I stated before, there is no physical exploration of the living brain. We are limited therefore, in studying its diseases, to the rational symptoms. It becomes our task to interpret the import of the multiform disturbances of function just enumerated, in every case in which more or fewer of them appear; and when you are told that these symptoms are apt to present themselves in almost every conceivable order and combination, and, moreover, that many of them may be sympathetic of diseases of other parts than the brain, you will scarcely need to be farther informed, that the language they speak is often very hard to construe; that we frequently fail to reach and discover, by these outward signals, the inward things they denote.

I am about to consider, in the first place, some of the inflammatory affections of the brain, and some which may easily be mistaken for inflammatory affections; and I warn you beforehand, that, in respect to exactness of diagnosis, we are sadly barren of certainties in these matters. Hints, sketches, approximations, are nearly all that I can promise concerning not a few of the many diseased conditions to which the brain and nerves are obnoxious.

In the brain, as in other composite organs, inflammation may be general or partial. It may attack certain tissues only; it may be seated in the substance of the cerebral mass, or in the membranes that envelope it.

I need not tell any of you that the membranes which invest the brain are three in number; the fibrous dura mater, the serous arachnoid, and the pia mater, which is composed of blood-vessels held together by a web of cellular tissue.

Speaking generally, inflammation of the cerebral substance alone, is perhaps more common than inflammation of the investing membranes alone. The central parts of the nervous mass may and do suffer inflammation, while the membranes escape. But it seems to me scarcely possible that inflammation of the pia mater should take place without implicating also the surface of the convolutions, with which it has so close a relation, and so intimate a vascular connexion.

Again, with respect to the membranes themselves, the dura mater may be inflamed while the pia mater remains unaffected. I believe also that the arachnoid may suffer inflammation, and leave the subjacent pia mater untouched. Whether the arachnoid ever escapes participating in the inflammation of the dura mater on the one side, or the pia mater on the other, is to be doubted.

Can we separate and distinguish these several inflammations by assigning to each its proper external phænomena? Seldom; scarcely ever. Doubtless each has its peculiar symptoms; and if inflammation was often strictly limited to the one membrane or the other, and if the course and events of the inflammation did not modify the condition of the brain itself, by pressure, or by affecting the circulation of blood through it, then we might expect greater uniformity, and hope by careful and repeated observation to seize upon the desired distinctions. But this simplicity is not exhibited by the inflammatory affections of the parts within the cranium. Inflammation commencing in one membrane is apt to spread readily and rapidly to the rest, and to the cerebral substance; and the complication of diseased conditions coexisting within the skull at the same time, throws confusion over the whole subject. This uncertainty of exact diagnosis is however of the less consequence, inasmuch as when we have learned that inflammation is going on in any part of the encephalon, we have learned enough to direct us as to the general plan of treatment to be adopted.

After all, certain symptoms do present themselves more frequently when one part is inflamed, and certain other symptoms more frequently when another part is inflamed; and it will be proper and convenient to contemplate certain forms of meningeal inflammation separately.

Inflammation of the dura mater.—Let us first then consider inflammation as it is confined, occasionally, to the dura mater—or to the dura mater and arachnoid.

This very rarely happens as an idiopathic or spontaneous disease; but it is not at all uncommon as a result of external injury. And we may advantageously trace its ordinary phænomena and consequences, by attending to these instances of traumatic inflammation of the dura mater. They were excellently well described, many years ago, by Mr. Pott. A man receives a blow on the head; the blow stuns him perhaps at the time, but he presently recovers himself, and remains, for a certain period, apparently in perfect health. But after some days he begins to complain; he has pain of the head, is restless, cannot sleep, has a frequent and hard pulse, a hot and dry skin, his countenance becomes flushed, his eyes are red and ferretty; rigors, nausea, and vomiting supervene; and, towards the end, convulsions and delirium. Meanwhile the part which was struck becomes puffy, tumid, and somewhat tender; and if this tumid portion of the scalp be cut through, the pericranium beneath it is found to be separated from the bone; and the bone itself is observed to be altered in colour, whiter and drier than the healthy bone; and if a piece of this bone be removed, it is also seen that the dura mater on the other side of it is detached from the cranium, and sometimes smeared with lymph or puriform matter. This is a form of disease very often met with by the surgeon. I have watched, with much interest, several such cases under the care of my hospital colleagues. One or two of them I will briefly describe.

In the year 1833, during Christmas time, the coachman of a lady living in my neighbourhood fell, being intoxicated, into a cellar or area, struck in his fall one side of his head, and tore up the scalp over a considerable space. He was carried to the hospital, where the loose flap of integuments was cleansed and replaced. After some days erysipelas came on, and then a much larger portion of the scalp sloughed away, so that the bone was laid bare to a frightful extent, and looked, at a little distance, as he sat up in bed, like the tonsure of a monk. Nevertheless the man seemed wonderfully free from suffering or distress: his pulse, indeed, was frequent, but it was said to be so during health. His intellect was clear, and he had *no* head symptoms; or rather, no brain symptoms.

In the early part of February, 1834, he had a shivering fit, which was followed by convulsions of the right side of the body, and subsequently by paralysis of the right arm and leg, and by stupor, from which he could easily be roused. He would put out his tongue when desired to do so; but to every question he answered "yes." A portion of the left parietal bone was evidently dead: here the trephine was applied; and a piece of bone being removed, the dura mater was exposed. It looked as if it also had lost its vitality. Some pus lay upon it. No relief followed the operation.

On the 10th of February fluctuation was detected beneath the dura mater, which was slit open. About three drachms of puriform fluid escaped. The patient died soon afterwards, having had no active delirium throughout.

The surface of the dura mater was found to be nearly of its natural appearance, except where the trepanning had been performed. At that spot it was dry and sloughy. Over the whole of the anterior and lateral surface of the left hemisphere lay a thick coating of coagulable lymph, smeared with pus: this extended down the posterior part of the hemisphere also, nearly to its base. There was no other morbid appearance; no fluid in the pia mater, or in the ventricles. The substance of the brain was every where perfectly sound and healthy: it was divided in all directions in search of an abscess, but nothing unnatural could be detected.

Another man came to the hospital to have a small incised wound of the scalp looked at. The injury appeared to be trivial; the cut was dressed, and the man made an out-patient. A few days afterwards he came again, imperfectly paralytic on one side of the body. I saw this man's skull trepanned: he was perfectly calm and collected: that part of the dura mater which corresponded to the wound was found to be inflamed; and there was pus diffused over the arachnoid covering the cerebral convolutions on the same side. He sank quietly into a state of coma, and so died. Not the slightest incoherence or delirium had been manifested, there had been no convulsions, nor was there any other morbid appearance within the cranium.

I mention these cases to show you the grounds of my own opinion that inflammation, beginning in the fibrous membrane, *may* affect the arachnoid, without *necessarily* extending to the pia mater; just as inflammation *may* overspread the pleura, or the pericardium, without touching the lung or heart which those serous membranes respectively invest. Here no sensible traces of inflammation were discovered, deeper than the free surface of the arachnoid; and there had been no disturbance, till towards the end, of the proper functions of the brain. I conclude that the disease did not pass beyond the serous membrane; for I can scarcely conceive inflammation of the pia mater to exist without involving, in some degrèe, the surface of the brain; nor inflammation of the surface of the brain to exist without some manifest derangement of the cerebral functions. In the instances that I have been relating the final stupor and palsy may reasonably be ascribed to *pressure* resulting from the *events* of the inflammation of the arachnoid; from the effused pus and lymph.

Inflammation of the dura mater is very rare as a simple and idiopathic affection. Dr. Abercrombie relates one instance of it, as the only one he had seen; and even that was not a pure case of inflammation of the dura mater. There was pus upon that membrane; and it adhered to the cranium over a space as big as a crown-piece; and at that spot it was ulcerated. But there was also found an adventitious membrane *beneath the arachnoid* where it covers the brain.

Speaking generally, this complaint is marked by pain of the head, by fever, and by rigors which intermit; and so regular sometimes are the intermissions, that the practitioner may be tempted to believe that he has got an aguish patient, and to administer bark. The intellectual functions, especially at the outset of the disease, are but little affected; which is just what we might expect.

Although inflammation of the dura mater is very uncommon as an idiopathic or primary disorder, we very frequently meet with it as a secondary affection; and then there are few diseases more surely fatal, or less within the reach of remedies. It is as a consequence of what is called *otitis*, that physicians are chiefly accustomed to encounter inflammation of the dura mater. It results from disease of the internal ear, and of the petrous portion of the temporal bone. Sometimes acute inflammation arises within the tympanum, when there has been no previous disease: the patient has severe ear-ache; at length a gush of matter comes from the external meatus, but the pain does not, as it usually does in such cases, cease; it continues, or even increases in intensity: the patient begins to shiver; he becomes dull and drowsy; slight delirium perhaps occurs; and by degrees he sinks into stupor. In some instances no pus issues externally. More commonly symptoms of the same kind supervene upon a *chronic* discharge of purulent matter from the ear. It is scarcely possible to sketch an accurate general picture of this insidious, but most dangerous complaint. Next to seeing and watching actual cases of it, the best way of becoming acquainted with its phænomena is by attending to recorded instances. I will bring before you, therefore, some examples of inflammation of the dura mater, occurring in connexion with disease of the interior of the organ of hearing.

A youth, sixteen years old, applied to the late Dr. Powell (who has related the case in the fifth volume of the *Transactions of the College of Physicians*) on account of an eruption, with an acrid discharge, behind the right ear. He had become deaf five years before, after scarlet fever, but no discharge took place at that time from the ear. In the following year, however, he had the measles, and then an abscess formed in the right ear, and after giving him much pain, it burst. He had again suffered, three days before Dr. Powell first saw him, a sudden attack of very severe pain in the same ear. The pain quite deprived him of rest; but he had no fever, nor delirium, nor coma. He slept, indeed, a great deal, but that was the effect of opiates, which he took to relieve the pain. This symptom was quieted by the opium; but it always returned with severity if the medicine was suspended. A foetid discharge came from the ear. On the tenth day of this attack, after a most violent paroxysm of pain, his strength rapidly declined, and he died.

"When the head was examined, the structure of the dura mater was healthy and natural, but beneath this membrane the whole superior surface of the right hemisphere was covered with a layer of coagulable lymph and pus. The vessels of the substance of the brain were not more numerous or loaded than usual, and the brain itself was healthy in every part. In the base of the skull the dura mater adhered to the bone, except at one part, of about half an inch diameter, just over the petrous portion of the temporal bone, where it was black and sloughy. The subjacent portion of the bone itself was carious, black, and crumbling; and contained fœtid pus."

In this case, you will observe, there was no symptom to mark the extensive mischief within the head, except the *pain:* the pulse never exceeded 72; the skin was warm and moist; there was neither fever, nor delirium, nor convulsion, nor coma.

A girl, aged nine, (I take this case from Dr. Abercrombie, whose volume on the diseases of the brain is full of practical and instructive *examples*) had been liable to attacks of suppuration of the ear, which were usually preceded by severe pain, and some fever. She suffered one of these attacks in the left ear, in July, 1810, from which she was not relieved, as before, when the discharge of matter took place, but continued to be affected with pain, which extended over the forehead. When Dr. Abercrombie saw her, he found that, besides the pain, she had some vomiting, and impatience of light. Her look was oppressed; the pulse 84. Blood-letting, purging, blistering, and mercury, were employed without relief. Two days afterwards there was slight and transient delirium, a degree of stupor, and slight convulsions. She lay constantly with both her hands pressed upon her forehead, and moaning from pain, of which there had not been the least alleviation. On the fifth day from the commencement of the discharge, she continued sensible, and died suddenly in the afternoon, without either squinting, blindness, or coma, the pulse having been always under 90. A considerable quantity of colourless fluid was found in the ventricles of the brain, which, in other respects, was healthy. In the left lobe of the *cerebellum* there was an abscess of considerable extent, containing purulent matter of intolerable fœtor. The dura mater, where it covered this part of the cerebellum, was thickened and spongy, and the bone corresponding to this portion was soft, and slightly carious on its inner surface; but there was no communication with the cavity of the ear.

Here again the pain was the most prominent symptom, and probably resulted from the partial inflammation of the dura mater. It is interesting to mark these two points:—that the disease in the bone imparted disease to the dura mater, although no passage was opened from the tympanum; and that this inflammatory state of the external membrane of the brain led (apparently) to deep-seated suppuration in the cerebellum; the parts lying between the abscess and the dura mater escaping.

This last, and somewhat singular circumstance, might have been owing, (so at least I conjecture) to the introduction of pus from the suppurating ear, into some of the cerebral veins, and the consequent formation in the cerebellum of one of those secondary abscesses so commonly noticed in uncircumscribed phlebitis. Two very remarkable instances of diffused inflammation of veins, and of its terrible effects, occurring in connexion with purulent otorrhœa, have fallen under my own observation: one of them in private practice, the other in the hospital. As I am not aware that such consequences as supervened in these cases upon otitis, have received much attention, I will briefly describe them.

The first of these two patients was a boy, eleven years old, whom I attended with Dr. Mac Intyre and Mr. Arnott. He had had a discharge of offensive purulent matter from his ear since the time when, four years before, he had gone through scarlet fever. In August, 1833, he went, for a walk, into Kensington Gardens, and there lay down, and slept upon the damp grass. The next day he was attacked with headache, shivering, and fever. Strong rigors, followed by heat and perspiration, occurred very regularly for two or three days in succession; suggesting a suspicion that the complaint might be ague: but then pain and swelling of some of the joints came on, and were, at first, considered rheumatic. However, the true and alarming nature of the case soon became apparent. Abscesses formed in and about the affected joints, and one of these fluctuating swellings was opened, and a considerable quantity of foul, grumous, dark-coloured matter let out. After about a fortnight the child sunk under the continued irritation of the disease. The hip-joint presented a frightful specimen of disorganization; it was full of unhealthy sanious pus, the ligamentum teres was destroyed, the articular cartilages were gone, and matter had burrowed extensively among the surrounding muscles. The knee and ankle-joints of the same limb were in a similar state. It is curious that the destructive disease of the joints was limited to those of the right lower extremity, while the primary suppuration was in the left ear. Unfortunately the head was not examined; but that the fatal disorder had penetrated from the ear to the dura mater, I entertain no doubt: in all probability the inflammation had involved the veins and sinuses of the head.

The second case had many points of similarity with this.

William Marriott, aged 19, was admitted under my care into the Middlesex Hospital on the 18th of October, 1834, having pain and tumefaction of the right shoulder, wrist, and foot, with redness of the latter. He complained also of headache, vertigo, drowsiness, and of an occasional feeling of stupor. His skin was hot and dry, his face flushed, his tongue furred, his pulse frequent (112), and his bowels were relaxed. A puriform discharge came from his right ear.

He had been suddenly seized, a week before, with sharp pain in that ear, which lasted twenty-four hours, when the discharge began, and the pain was relieved. He then began also to have headache, which had never left him, and to be sometimes dizzy. Three days previously to his admission the rheumatism (as he supposed it to be) commenced in the foot. When this part was examined, the redness was found to be circumscribed, somewhat livid, and limited to the great toe. It had much the appearance of gout.

He soon began to be troubled with shivering fits, which recurred regularly every morning about the same hour, and were followed by burning heat of the skin, but no sweating. An abscess formed near the toe, and was opened by Mr. Mayo, and some healthy looking pus evacuated. Next a large fluctuating tumor near the shoulder was punctured, and three ounces of pus, mixed with blood, came out. After this incision the rigors ceased; but the abscesses continued open, and the discharge had an offensive smell. On the 14th of November it was discovered that matter had collected in the left hip: this also was emptied by puncture. On the 1st of December, a very large quantity, not less than three pints, of unhealthy and grumous pus, was let out from a vast abscess which had formed in the loins: and pus was noticed in his stools. The discharge from the shoulder came at last to resemble the lees of port wine.

During all this while the patient remained feverish, with a dry parched tongue, and a rapid and feeble pulse. The diarrhœa continued, more or less, throughout. For some time before his death, which happened about the middle of the month of December, the left leg and thigh had been much enlarged by œdema.

I was not able to be present at the inspection of the body; and I have to regret that in the report which I received of it, the condition of the brain, of its membranes, and its veins, was not noted.

The right shoulder-joint was extensively diseased; the cartilages were destroyed by ulceration over a considerable space. Those of the left hip were entire, but the synovial cavity was full of foul matter. The joint of the great toe was implicated also in the abscess which had formed there. The femoral vein, on the left side, was plugged up, throughout its whole extent, by a coagulum, which was firm and of a reddish brown colour at the upper part of the vessel, loose and darker towards the ham. The saphena was pervious: the iliac was free from disease.

The lungs had undergone partial disorganization. Several distinct portions of the pulmonary tissue were nearly solid, while the tissue immediately around them was crepitant and healthy. From the vessels belonging to these solidified portions, purulent matter could be expressed.

The mastoid cells of the right temporal bone were filled with pus, and there was a slit-like opening in the membrana tympani. The small bones of the ear were sound.

I much lament that in these two instances, the direct link of connexion between the disease of the ear and the disorganization of the joints was not demonstrated: for seeing (they say) is believing. Yet the pain of the ear, the discharge of pus from the external meatus, the subsequent pain of the head, coming on with fever and rigors, and followed after a short interval by destructive suppuration in several distant parts, and, in the last case, the actual femoral phlebitis: these circumstances form a chain of presumptive evidence, amounting, in my judgment, to moral certainty, that the fatal mischief, in each case, found entrance through "the porches of the ear;" and that the dura mater underwent inflammation. The same evidence is scarcely less affirmative of the complication of cerebral phlebitis. The immediate vicinity of some of the sinuses to the diseased bone, and their formation by a dupliature of the dura mater, would seem to render such a complication highly probable*.

Dr. Griffin has published, in the *Dublin Journal of Science*, two cases of otitis attended with symptoms exactly resembling those of intermittent fever. One of them is as follows:—A young man, previously healthy, was attacked with fits of shivering, accompanied by pain in the left side of the head. At first the paroxysms were rather irregular, but they soon assumed the form of *tertian ague;* coming on every other day, at about the same hour; the cold fit commencing at noon, and lasting about half an hour, followed by a hot stage of somewhat longer duration, and terminating in profuse perspiration. In the intermissions the pain in the head was trifling: there was no thirst, or heat of skin, but he did not sleep. A tumour formed over the mastoid process of the left side, and was opened, and a quantity of extremely offensive brownish pus sprang out with great force. This gave much relief. The bone was carious over a space as big as a shilling. After about ten days, the pain in the head and in the mastoid process became very severe: the patient had violent shivering fits many times in the day, great thirst, heat of skin, vomiting, and delirium; his face was flushed, and his pulse hard; and he died within a few hours after the accession of these last symptoms.

The most remarkable features in this case were the similarity of the fits of shivering to the paroxysms of ague, their regular recurrence at periods of forty-eight hours, and the circumstance that they seemed, for some time, benefited by the treatment proper in ague; namely, the exhibition of bark. The occurrence of *quotidian* paroxysms of the same kind has been noticed in relating some of the previous cases.

I have related them to shew you what different symptoms may result from inflammation of the dura mater; and to put you upon your guard against overlooking the cause from which such inflammation does frequently originate. The suppuration of the tympanum, and consequent disease of the bone, are more common in scrofulous persons than in others; and they are more apt to occur as sequelæ of scarlet fever than in any other way. I conceive that the inflammation of the throat, which belongs to that disorder, and often constitutes all its danger, creeps along the eustachian tube into the interior of the ear. In strumous subjects the fire thus lighted smoulders on, or if it ever goes out, is readily rekindled; that part of the temporal bone, in which the organ of hearing is principally lodged, becomes carious; the membrana tympani is perforated; the little bones of the ear come away; more or less deafness ensues; and from time to time, or habitually it may be, there is a discharge of pus from the external orifice. At length the inner surface of the bone participates in the disease; and then the inflammation is apt to be propagated to the dura mater, in the manner of which I have given you some instances. It is in the first onset of the inflammation in the ear that remedies are most likely to be efficient in preventing this catastrophe. Leeches applied early and repeatedly to the mastoid process, especially when that part becomes tender, as it often does in such cases, and counter-irritation afterwards, are the best means in our possession. If symptoms of inflammation within the head supervene, the complaint requires more vigorous treatment, which I shall describe when I have spoken of inflammation of the other membranes of the brain. After what has been said, it is unnecessary to point out to you that the prognosis in these cases is very unfavourable. But we are not to abandon them in despair. That inflammation of the dura mater may be recovered from, we know, by what happens in certain injuries of the head: and the following would seem to be an instance of recovery when the source of the mischief was situated in the ear:—A young lady, after the usual symptoms in the head, lay for three or four days in a state of perfect coma, and her condition was thought utterly hopeless. Her medical attendants continued to visit her as a matter of form; and one day they were agreeably surprised to find her sitting up, and free from complaint: a copious discharge of matter had taken place from the ear with immediate relief; and she *continued* in good health.—*(Abercrombie.)* We cannot be sure in such a case that the matter came from the brain; but the symptoms made that supposition exceedingly probable. The case shews clearly one of two things; either that pus may thus escape from the interior of the skull and the patient get well; or that pus shut up in the cavity of the tympanum may produce the urgent symptoms that are known to result from cerebral pressure.

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* Almost while this lecture was passing through the press, an interesting communication from Dr. Bruce, of Liverpool, upon the very point here discussed, has appeared in the MED. GAZETTE. (pp. 608 and 636 of the present volume.) Dr. Bruce narrates two cases, witnessed by himself, of "Phlebitis of the Cerebral Sinuses as a Result of Purulent Otorrhœa:" and he refers to several others recorded by different authors. This combination of disease is doubtless more common than has been heretofore supposed; and the important pathological considerations connected with it will probably receive further illustration, now that the attention of the profession has been called to the subject by Dr. Bruce's paper.—T. W.

Cases are recorded of analogous disease communicated from the carious *æthmoid* bone to the dura mater; the patients having had pain in the forehead and purulent discharge from the nose, and becoming at last forgetful and delirious, and dying in a state of coma. I have never met with an instance of this kind; nor of inflammation spreading inwards from the socket of the eye: but I make no doubt that both may occasionally happen.

These three then—*idiopathic* inflammation of the dura-mater—very rare; inflammation of the dura mater by extension of disease from the æthmoid bone, or from the orbit—also infrequent; and inflammation of the dura mater by extension of disease from the petrous portion of the temporal bone—very common: constitute those forms of inflammation of the outermost tunic of the brain, which the physician may be called upon to treat. The inflammation is not always—nay, perhaps it is seldom, if ever—restricted to that tunic; but it begins there; and the essence of the disease is inflammation of the *dura mater*.

Acute *arachnitis*—by which I mean active and *uncombined* inflammation of the arachnoid membrane—is, I apprehend, a very uncommon disorder; although that term is of frequent occurrence in medical writings. I have shown you already that inflammation may pass from the fibrous dura mater to the serous membrane reflected over it; and thence (by what is sometimes called contiguous sympathy) to the opposite portion of the same membrane spread over the surface of the brain. So, likewise, inflammation may extend from the pia mater to the arachnoid. If simple arachnitis, of an acute kind, ever happens, it has not been my fortune to see, or recognize it; and I can tell you nothing about it. In truth, the authors who use the term arachnitis do not intend thereby to express unmixed inflammation of the arachnoid; but include under that appellation inflammation of the pia mater also. Some apply the name *meningitis* to that compound affection; and the only objection to this nomenclature is, that the dura mater is as much one of the meninges of the brain as the other two.

Inflammation of the pia mater.—In the few remarks which I have to make upon inflammation of the pia mater (or, if you will, of the pia mater and arachnoid at once) I shall chiefly follow Dr. Abercrombie: because his observations are comparatively recent, and carefully made; because his veracity, and sobriety of judgment, and philosophical turn of mind, are well known; and because his cases (as regards this particular affection) are quite to the point, and his descriptions clear and concise.

But I must premise a word or two respecting the anatomical characters of the disease.

When the upper part of the skull, and the dura mater, have been removed, you may frequently see, on the surface of the exposed brain, what seems to be a thin layer of a clear gelatinous substance; but this appearance is fallacious. Puncture here and there the transparent arachnoid, and a limpid fluid, like water, trickles out; and the jelly-like investment of the convolutions is gone. Now this thin serous liquid, thus collected in the meshes of the pia mater, may be the event of inflammation of that membrane; but it may also be produced, and it very often indeed is produced, by simple congestion and remora in the cerebral veins: we cannot, therefore, with any certainty, infer, merely from seeing this serous effusion, that there has been inflammation: we judge of its import, by noting the coexistence, or the absence, of other traces of inflammation; and by the character of the symptoms that preceded death.

On the other hand, we may be sure that there has been inflammation of one or both of these tunics of the brain when we find *false membranes* between them; layérs, *i. e.* of coagulable lymph. In the effusion of this substance I conclude that the vessels of the pia mater play the main part; both because it is always, in such cases, excessively vascular, while the arachnoid is seldom found to be so in any remarkable degree, if at all: and also, because this false membrane commonly, though not always, sends down processes, between those duplicatures of the pia mater which descend into the sulci formed by the convolutions; where, as you know, the arachnoid does not go. In fact, considering the arachnoid as the serous membrane of the brain, we should expect that, when inflamed, it would present the events or products of inflammation on its free surface; and we sometimes find them there; but this is very rare; and for my own part, I look upon those effusions which lie beneath the arachnoid, between it and the pia mater, as being furnished exclusively by the vessels of which the latter membrane is mainly composed.

Now the inflammation of these membranes (taking them together) commences, and declares itself, by no fixed or uniform symptoms. The most common and striking phænomenon is a sudden and long-continued paroxysm of *general convulsions*. Sometimes this is the first thing noticed; sometimes it comes on after a few days of discomfort, and headache; and among the symptoms thus preceding the convulsions, *vomiting* is of frequent occurrence: the convulsions recur, and at length end in coma. Sometimes, again, the first attack of convulsions comes on after violent pain in the head, setting in quite suddenly, and attended with screaming.. I do not find in any of the various examples given by Dr. Abercrombie any mention made of violent or continued *delirium;* which is generally set down by authors as marking inflammation of the membranes. He does give cases, indeed, in which there *was much* delirium; but they were not cases of meningitis of any kind. He relates them as instances "of a very dangerous modification of the disease, which shows only increased vascularity." I venture, with great humility, to question or criticise any opinion of Dr. Abercrombie's: but I entertain no doubt about the nature of the cases which he so describes; and I hope to convince you by-and-by that they are not examples of inflammation at all: they neither show the anatomical characters of inflammation, nor yield to the remedies of inflammation. Excluding these cases, I do not find delirium marked as a symptom of uncombined meningitis. I shall abridge one or two of the well-marked examples of the disease.

A girl, aged nine, woke suddenly in the middle of the night, screaming from violent headache, and exclaiming that some person had given her a blow on the head: for the next two days she complained of some, but not much pain in her forehead, and did not even remain constantly in bed; no alarm was felt about her. On the third day she was seized with violent and long-continued convulsions, and immediately after the convulsions she fell into a state of deep coma: she remained in this state, with a natural pulse, till she died, on the sixth day of the disease.

When the dura mater had been removed, the other membranes appeared highly vascular, except where this appearance was concealed by a layer of yellow adventitious membrane, spread out betwixt the arachnoid and the pia mater. This was distributed in irregular patches over various parts of the surface of the brain, but was most abundant on the upper part of the right hemisphere. It was as thick as a wafer, and in some places dipped down between the convolutions. A considerable quantity of it extended over the surface of the cerebellum also.

A child two years old was suddenly attacked one morning with severe and long-continued convulsions. The convulsions recurred many times; in the intervals she was dull and torpid, in a state of partial coma, with occasional starting, and a frequent and feeble pulse. On the fourth day she sunk.

The surface of the brain, when the dura mater was removed, was covered in many places, betwixt the arachnoid and pia mater, by an adventitious membrane. It was chiefly found above the openings between the convolutions, and in some places appeared to descend a little way between them. The arachnoid when detached seemed to be healthy; but the pia mater was in the highest state of vascularity throughout; and when the brain was cut vertically, the spaces between the convolutions were most strikingly marked by a bright line of vivid redness, produced by the inflamed membrane. There was no effusion in the ventricles, and no other morbid appearance.

In another example the whole surface of the brain was covered by a continued stratum of yellow false membrane, lying between the arachnoid and pia mater, and in some parts following the course of the pia mater through the whole depth of the convolutions; the pia mater and arachnoid adhered together every where, very firmly, by means of it: not a trace of it could be found either on the outer surface of the arachnoid, or the inner surface of the pia mater: the arachnoid itself, when separated, presented no unusual appearance, but the pia mater was every where excessively vascular. There was no serous effusion, and the brain and cerebellum were perfectly healthy.

Now in this dissection there was unequivocal evidence of acute and extensive inflammation of these membranes, or, I should say, of the pia mater; yet the symptoms had been very obscure. The child in whom the disease occurred was convalescent from a mild attack of scarlet fever. One evening he became very feverish, and complained of his belly. Three days afterwards he had frequent *vomiting*, followed by coma, and some convulsive movements of his face and arms, and death took place four days and a half after the feverishness began. We learn from this case, that general and severe inflammation of the innermost membrane may exist, and prove fatal, without giving rise to any violent symptoms at all.

I must trouble you with one more history, because it affords another example of what I have mentioned as being rare; viz. the effusion of the products of inflammatory action upon the outer surface of the arachnoid, and marking therefore very distinctly the inflammation of that membrane. It was evidently combined, however, with inflammation of the *pia mater* also. A child, eight months old, died after more than three weeks illness; which began with fever, restlessness, and quick breathing; afterwards there were frequent convulsive affections, with much oppression; and at last severe convulsions, squinting, and coma. At an early period of the complaint, a remarkable prominence of the anterior fontanelle was noticed; in the second week this *increased* considerably; and in the third week, it was elevated into a distinct circumscribed tumour, which was soft and fluctuating, and pressure upon it occasioned convulsions. It was opened by a small puncture, and discharged at first some purulent matter, afterwards bloody serum. No change took place in the symptoms, and the child died four days after.

A deposition of thick flocculent matter mixed with pus was found covering the surface of the brain to a considerable extent, and lying *upon* the free surface of the arachnoid. There was a similar deposition also between the arachnoid and the pia mater, and considerable effusion into the ventricles.

If the sketches I have been giving you afford a true outline of the phænomena which attend acute inflammation of the pia mater, or of the pia mater and arachnoid jointly, what, you may naturally ask, is the nature of those cases in which there is high excitement, and much fever, and great delirium, and which are sometimes spoken of as *phrenitis*, or as brain-fever? Why these *are* instances of acute inflammation of the whole contents of the cranium; of the brain *and* its membranes; of the encephalon in short; and, therefore, the disease has, not improperly, been called *encephalitis*. Of this formidable malady I shall give you some account to-morrow.

LECTURES
ON THE
FUNCTIONS OF THE NERVOUS SYSTEM.

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Lecture I.

General View of the Functions of the Nervous System.

The existence of *consciousness*, by which the individual (*le moi*, in the language of French physiologists) becomes *sensible* of impressions made upon its bodily structure,—and the power of *spontaneously* exciting contractions in its tissues, by which evident motions are produced,—may be regarded as the peculiar attributes of the beings composing the Animal kingdom. Although evident motions are exhibited by some plants, they cannot be regarded as indicating the existence of any psychical endowments in the beings included in the vegetable kingdom. These motions are usually to be referred to the direct operation of a stimulus upon a contractile tissue: as when the stamen of the berberry is caused to move by the mechanical irritation of the contractile cells on one side of the base of its filament. In some cases, as in the *Dionæa* and *Mimosa*, the irritation, which is at first produced by a mechanical stimulus, occasions motion in a distant part; but there is not here any necessity to imagine the existence of a nervous system as the recipient of the impression and the originator of the motion; since the phenomena may be accounted for without any such supposition; and it is a well-known rule in philosophy, which cannot be too steadily kept in view in prosecuting physiological inquiries,—*non fingere hypotheses*.

There are in animals, however, many movements which are equally dependent upon direct stimuli for their production. Such are, even in the highest, the actions of the heart and of the alimentary canal. These, in the lowest tribes, probably bear a much greater proportion to the whole amount of those exhibited by the beings, than they do in the higher; whilst those which we may regard as specially dependent on a nervous system, appear to constitute but a small part of their general vital actions. The life of such beings much more closely resembles that of the vegetable, than that of the higher animal. Their organic functions are performed with scarcely more of sensible movement than is seen in plants; and of the motions which they do exhibit (nearly all of them *immediately* concerned in the maintenance of the organic functions), it is probable that many are the result of the simple contractility of their tissues, called into action by the stimuli directly applied to them. It is scarcely possible to imagine that such beings can enjoy any of those higher mental powers, which man recognizes by observation on himself, and of which he discerns the manifestations in the tribes, which, from their nearer relation to himself, he regards as more elevated in the scale of existence.

If we direct our attention, on the other hand, to the psychical* operations of man, as forming part of his general vital actions, we perceive that the proportion is completely reversed. So far from his organic life exhibiting a predominance, it appears entirely subordinate to his animal functions, and seems destined only to afford the conditions for their performance. If we could imagine his nervous and muscular systems to be isolated from the remainder of his corporeal structure, and endowed in themselves with the power of retaining their integrity and activity, we should have all that is essential to our idea of man. But, as at present constituted, these organs are dependent, for the maintenance of their integrity and functional activity, upon the nutritive apparatus; and the whole object of the latter appears to be the supply of those conditions necessary to the exercise of the peculiarly *animal* functions. That his mental activity should be thus made dependent upon the due supply of his bodily wants, is a part of the general scheme of his probationary existence; and the first excitement of his intellectual powers is in a great degree dependent upon this arrangement.

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* Here and elsewhere this term will be employed in its most extended sense, to designate *all* the mental operations,—whether intellectual, emotional, instinctive,—of which man's nervous system is the instrument.

All our positive knowledge of the functions of the nervous system is derived from observation of the movements exhibited by animals, and from our own consciousness of that which passes within us. Except through the movements consequent upon them, we have no means of ascertaining whether or not particular changes in the nervous system are attended with sensation. The cries and struggles of the animal made the subject of experiment, are ordinarily considered as indications of sensation; but it is not right so to regard them in every instance; nor are we justified in asserting that consciousness results from any external irritation, merely because movements evidently tending to get rid of it are performed in respondence. We know that the contractions of the heart and alimentary tube are ordinarily excited by a stimulus, without any sensation being involved; and these movements, like all that are concerned in the maintenance of the organic functions, have an obvious design, when considered either in their immediate effects, or in their more remote consequences. The character of *adaptiveness*, then, in muscular movements excited by external stimuli, is no proof that they are performed in obedience to sensation; much less, that they have a voluntary character. In no cases is this adaptiveness more remarkable than in some of those purely instinctive actions, which are not only performed without any effort of the will, but which the will cannot imitate. This is the case, for example, with the act of deglutition; the muscles concerned in which cannot be thrown into contraction by a voluntary impulse, being stimulated only by impressions conveyed from the mucous surface of the fauces to the medulla oblongata, and thence reflected along the efferent fibres. No one can swallow without producing an impression of some kind upon this surface, to which the muscular movements will immediately respond. Now it is impossible to conceive any movements more perfectly adapted to a given purpose, than those of the parts in question; and yet they are not only independent of volition, but of sensation, being still performed in cases in which consciousness is completely suspended, or entirely absent.

There is much difficulty, then, in ascertaining the really elementary functions of the nervous system by experiments upon animals; and it is only when their results are corrected and explained by pathological observation in the only case in which we can obtain satisfactory evidence of the presence or absence of sensation, that they have much value to the physiological inquirer. From these combined sources, however, a vast amount of knowledge of the functions of the nervous system has recently been gained; and the general purposes to which it is subservient may be advantageously stated in a systematic form, before we enter upon any detailed examination of them.

1. The nervous system receives impressions, which, being conveyed by its afferent fibres to the sensorium, are there communicated to the conscious mind. It is subservient in some way to the acts of that mind; and, as the result of these acts, a motor impulse is transmitted along the efferent trunks to particular muscles, exciting them to contraction. This motor impulse, however, may be either of an *emotional* or a *voluntary* character. We shall hereafter see reason to believe that to these functions the brain and the nerves proceeding from it are subservient.

2. Certain parts of the nervous system receive impressions, which are propagated along afferent fibres that terminate in ganglionic centres distinct from the sensorium; and in these a reflex motor impulse is thus excited, which, being conveyed along the efferent trunks proceeding from them, excite muscular contraction, without any necessary intervention of sensation or volition. Of this function (called by Dr. Hall, to whom the discovery of it is in great part due, the reflex function), we shall find that the portion of the spinal cord of Vertebrata which is not continuous with the fibrous structure of the brain, together with the portion of the nervous trunks which are connected with it alone, is the instrument.

3. Another division of the nervous system appears to have for its object to combine and harmonize the muscular movements immediately connected with the maintenance of organic life, and to bring these into relation with certain conditions of the mind. There is also reason to believe (though this is less certain) that it also influences and brings into connection the processes of nutrition, secretion, &c.; though these, like the muscular movements just mentioned, are essentially independent of it.

Now, in reference to the first class of operations, it is well to explain that, when the physiologist speaks of the intellectual powers, moral feelings, &c. as *functions* of the nervous system, they are not so in the sense in which the term is employed in regard to other operations of the bodily frame. In general, by the *function* of an organ, we understand some change which may be made evident to the senses, as well in our own system as in the body of another. Sensation, thought, emotion, and volition, however, are changes imperceptible to our senses, by any means of observation we at present possess. We are cognizant of them in ourselves without the intervention of those processes by which we observe material changes external to our minds; but we judge of them in others only by inferences founded on the actions to which they give rise, when compared with our own. When we speak of sensation, thought, emotion, or volition, therefore, as functions of the nervous system, we mean only that this system furnishes the conditions under which they take place in the living body; and we leave the question entirely open, whether the ψυχη has or has not an existence independent of that of the material organism by which it operates in man as at present constituted.

In regard to the second class of actions, it may be remarked that they are nearly all connected, more or less closely, with the organic functions, or with the protection of the body from danger. Thus the movements of the pharynx supply to the stomach the alimentary materials it prepares for the nutrition of the body; those of the muscles of the thorax, &c. maintain the constant interchange of air in the lungs which is necessary for the aeration of the blood: whilst those by which a limb is involuntarily retracted from any cause of pain or irritation, are obviously adapted to the latter of these two ends.

Nature of the nervous structure.—Wherever a distinct nervous system can be observed, it is found to consist of two kinds of structure; the presence of both of which, therefore, may be regarded as essential to our idea of it as a whole. One of these is that which is designated the *white* or *fibrous* matter. This constitutes (with the neurilema or nerve-sheath, and the cellular tissue which it encloses), the whole of the nervous trunks wherever they occur, and forms a large part of the central masses with which they are connected. The other is termed *cineritious* or *grey* matter. It seems to consist principally of a plexus of blood-vessels, in which the fibres of the former appear lost; and amongst these lie a number of granules which do not seem to have any definite arrangement. This is usually disposed in the *centre* of the larger masses with which the nervous trunks are connected. It forms the *nuclei* of the ganglia which are the centres of the nervous system in the Invertebrata: it occupies part of the interior of the spinal cord of Vertebrated animals, which may be regarded as a chain of similar ganglia; and in the distinct ganglia which occur among the latter, it holds the same relative position. In the brain of Vertebrata, however, it is disposed externally, and forms a sort of coating to the mass beneath, which almost entirely consists of fibrous structure; hence it has been called the *cortical* substance, whilst the fibrous portion has been termed *medullary* matter. There can be little doubt that the functions of these two divisions of the nervous system are different. That of the fibrous structure, as it exists in the nervous trunks, is unquestionably to conduct or convey the influence of changes which have taken place elsewhere. And, in accordance with what has previously been stated of the mode in which the mind is brought into relation with the external world through this nervous apparatus, we find that there are (in the higher tribes of animals, at least, if not all) two sets of fibres; one of which has for its office to convey external impressions *towards* the nervous centres, whilst the other conveys the influence of these central organs to the structure at large, and especially to the muscular system. Hence it will be convenient to denominate the first *afferent* fibres, and the second *efferent*. These are to be regarded as general terms, expressing only the direction in which they propagate the changes to which they are subservient. The nature of these changes will be a subject of future inquiry.

Distinct course and function of nervous fibres.—Every fibre, there is reason to believe, runs a distinct course from the central organ, in which it loses itself at one extremity, to the muscle or organ of sense in which it terminates at the other. Each nervous trunk is made up of several fasciculi of these fibres; and each fasciculus is composed of a large number of the ultimate fibres themselves. Although the fasciculi occasionally intermix and exchange fibres with one another, (as occurs in what is termed a *plexus*), the fibres themselves never inosculate. Each would seem, therefore, to have its appropriate office, which it cannot share with another. The objects of a plexus are two-fold. In some instances it serves to intermix fibres which have endowments fundamentally different: for example, the spinal accessory nerve is, at its origin, exclusively motor, and the roots of the par vagum are as exclusively sensory; but by the early admixture of these, a large number of motor fibres are imparted to the par vagum, and distributed, in variable proportion, with its different branches, whilst a small proportion of its sensory filaments seems to enter the spinal accessory. In other instances the object of a plexus appears to be to give a more advantageous distribution to fibres which all possess corresponding endowments. Thus the brachial plexus mixes together the fibres arising from five segments of the spinal cord, and sends off five principal trunks to supply the arm. Now if each of these trunks had arisen by itself from a distinct segment of the spinal cord, so that the parts on which it is distributed had only a single connection with the nervous centres, they would have been much more liable to paralysis than at present. By means of the plexus every part is supplied with fibres arising from each segment of the spinal cord;

and the functions of the whole must therefore be suspended before complete paralysis of any part can occur from any cause which operates above the plexus. It is not unlikely that, by this arrangement, a *consentaneousness* of action is, in some degree, favoured; for comparative anatomy shows that something resembling it may be traced, wherever a similar purpose has to be attained. Thus, in the Hymenoptera, there is a similar interlacement between the nerves of the anterior and posterior pairs of wings, which act very powerfully together; whilst in the Coleoptera, in which the anterior wings are converted into elytra, and are motionless during flight, the nerves supplying each pair run their course distinctly. In the Octopus, again, the trunks which radiate from the cephalic mass to the eight large arms surrounding the head, are connected by a circular band, forming a kind of plexus, which evidently contributes to the very powerful and harmonious movements of the arms of this Cephalopod.

In those nervous centres of which the bulk is not great in proportion to the size of the nerves connected with them, there is commonly but little difficulty in tracing the fibres of the latter into their substance, and observing their termination in the gray matter of their nucleus. But, in the brain of the higher vertebrata, and especially in that of man, the case is somewhat different. The great mass of this organ is composed of fibres communicating between the different portions of its own cortical substance; and those which are connected with the nervous trunks cannot be so readily distinguished. Still there can be little doubt that there is here, also, a conformity with the general proposition, that each fibre, at its central termination, passes towards the grey matter, in which it loses itself, and maintains its distinctness from the rest, even through the most complex interlacement.

As the structure of the medullary matter of the brain and spinal cord does not present any essential difference from that of the nervous trunks, and as the fibres of the latter are continuous with a part of their fibres, there appears some ground for the belief that the function is the same in both instances; and that the tubular fibres, wherever they present themselves, serve as *conductors* of the changes which take place (usually at least) at one of their extremities. We then come to inquire how these changes are *originated;* and, finding at the central extremity a substance of peculiar character, and evidently (from the quantity of blood sent to it) the seat of important and energetic operations, we are naturally led to inquire if any such structure can be detected in the peripheral terminations of the nervous fibres. Microscopic examination of those which are connected with sensory organs, shows that they come into relation with a substance very analogous to the grey matter of the centres, though its elements are somewhat differently arranged. It is evident, both in the retina, the expansion of the auditory and olfactory nerves, and in the papillæ of the skin and tongue, that the fibres terminate in close approximation with a vascular plexus; and a granular structure is always present, which seems (as in the cortical substance of the brain) to be intermediate between them. We may regard this point, therefore, as the *origin* of the *afferent* fibres; and it would seem to be here that those changes are effected by external impressions, which are propagated by the fibres to the central organs. Now it is an interesting discovery, recently made by Foville, that the fibres which radiate from the *sensory* tract of the medulla oblongata towards the cortical substance of the hemispheres, *do not terminate* in it; but that they form a series of loops, passing through it and converging again towards the centre from which they had diverged. Some of these loops do not reach the exterior of the hemispheres, but pass through the isolated tracts of grey matter which the brain contains.

On the other hand, the influence which produces muscular contraction is transmitted *from* the central organs, and probably from their grey matter; and this we may regard as the *origin* of the *efferent* fibres. These efferent fibres are distributed on the muscles nearly in the same manner that the afferent spread through the brain; that is, they do not terminate in free extremities, but a series of returning loops is formed by them.

It may be argued against this view of the respective functions of the granular and fibrous structures, that sensation may be produced by pinching an afferent trunk in its course, and that motion may be excited by irritating an efferent nerve; so that the changes which have been spoken of as occurring at their points of origin in the vascular plexus are not to be regarded as the means by which such influences are produced. But this argument will have little weight when it is recollected that, on the same ground, we might infer that neither the organs of sensation, on the one hand, nor any part of the brain, or spinal cord, on the other, are the sources of the changes in question. The effects are obviously due to the fact that the artificial stimulus imitates the natural one; and thus it is that, if a sensory nerve be compressed, the sensation produced is referred to the part of the surface to which its branches are distributed.

The belief that all changes in the nervous system, whether they take place at the centre or at the periphery, originate at the points in which the fibres come into relation with the vascular plexus, derives confirmation from the well-known dependence of these changes upon the activity of the circulation through the part at which they occur. Thus, if the circulation of blood through the brain be suspended for an instant, insensibility supervenes. If the cause of suspension be local only, the remainder of the nervous system may still be excited to action. This was the case in the experiments of Sir A. Cooper. . After having tied both carotid arteries in a dog, he compressed the vertebral trunks, and immediate insensibility resulted, proving the inactive condition of the brain; whilst convulsions also occurred, showing that the functions of the spinal cord were not suspended, but only deranged. But if, as in syncope, the circulation through the spinal cord also be weakened, its power of producing motions in respondence to impressions is diminished in like proportion. In the same manner, the production of impressions on the peripheral origins of the afferent nerves appears equally dependent upon the active influence of the vascular system. Every one knows that cold, which retards the circulation of blood through the skin, diminishes also its sensibility; and obstruction to the circulation by any other cause, such as pressure on the arterial trunks, produces the same effect. We have no opportunities of observing such affections of the *special* sensory organs, except when the whole supply of blood to the head is checked; and then, as the brain is also affected, there is no proof that the absence of sensation is partly due to the suspension of *their* impressibility, though it can scarcely be doubted that this is the case. Moreover, it is always found that an increase in local circulation is accompanied by an exaltation of the sensibility of the part. This may be especially noticed in the genital organs of animals during the period of heat; and in those of man when in a state of venereal excitement. It may be remarked, also, in those affections so closely bordering upon inflammation, to which the term *active congestion*, or *determination of blood*, has been applied. The *pain* which usually accompanies inflammation may be partly referred to this source; but it seems principally dependent upon other causes.

The foregoing is, perhaps, all the information we at present possess respecting the elementary structure of the nervous system, which can be directly brought to bear upon physiological inquiries. Recent microscopical observations, however, have informed us of several facts which should not be overlooked. The cavity of the nerve-tubes is filled with a sort of medulla or pith, which, when squeezed from them, has a granular consistence; but, when lying *in situ*, this substance is stated by Remak to be itself a continuous fibre, divisible into minute filaments. At some of the extremities of the nerves these minute filaments can be seen to separate from each other, spreading out in a loop-like manner over the surface to which they are distributed, on which a complete network is thus formed, consisting of filaments much more minute than can be elsewhere distinguished. The diameter of the fibres varies among the Invertebrata from $\frac{1}{48}$ to $\frac{1}{1000}$ of a line; but in the vertebral animals the extremes are not so distant, the tubes being commonly from $\frac{1}{120}$ to $\frac{1}{240}$ of a line in diameter. A similar fibrous structure is evident in the brain; and here the tubes seem to contain a viscous fluid, not altogether unlike the medulla of the fibres of nerves, but of less consistence. A different structure has been described by Ehrenberg, under the name of *varicose* tubes, which he states to exist in the brain, spinal cord, and nerves of special sensation. These tubes were so named from their not being cylindrical, but presenting dilatations at intervals, so as to resemble a string of beads; and the appearance of these dilatations has given rise to the opinion that the brain is composed of globules. It is now, however, satisfactorily shown that they are the result of the pressure and other manipulations to which the objects are subjected in preparation for the microscope; and that, if the nervous fibres of the brain and other parts are examined in a recent state, they are cylindrical, like those of the nervous trunks in general. Still there is some difference in their structure, since they exhibit this tendency to become varicose, which is elsewhere wanting.

Besides these tubular fibres, which constitute the white portions of the nervous matter, there are other filaments of a grey colour, and of much smaller diameter, without distinct cavities, which exist especially in the sympathetic nerves, but which may also be detected in others. These fibres may be termed *organic*; those existing in the sympathetic system of nerves may be traced to its ganglionic centres; whilst those which are formed in the cerebro-spinal nerves are connected with the ganglia upon their posterior roots.

Our simplest idea, then, of a nervous system, includes a central organ—of which the grey matter, formed by the intermixture of nervous fibres and blood-vessels, is the essential part,—and a double set of fibres connected with it; one conveying to it the impressions produced by external changes upon the periphery (where also the nervous structure comes into peculiar relation with the vascular system); and the other conducting from it the motor stimulus, originating in itself, to the contractile tissue. This is precisely what we find in the lowest animals, in which a nervous apparatus can be distinguished, as will be explained in the next lecture. At present it will be desirable to consider some other questions which early present themselves in the study of neurology.

Mode of determining the functions of nerves.—Various methods of determining the functions of particular nerves present themselves to the physiological inquirer. One source of evidence is drawn from their anatomical distribution. For example, if a nervous trunk is found to lose itself entirely in the substance of muscles, it may be inferred to be chiefly, if not entirely, motor or efferent. In this manner, Willis long ago determined that the third, fourth, sixth, portio dura of the seventh, and ninth cranial nerves, were almost entirely subservient to muscular movement; and the same had been observed of the fibres proceeding from the small root of the fifth pair, before Sir C. Bell experimentally determined the double function of the division of that nerve into which alone it enters. Again, where a nerve passes through the muscles, with little or no ramification among them, and proceeds to a cutaneous or mucous surface, on which its branches are minutely distributed, there is equal reason to believe that it is of a sensory, or rather of an afferent, character. In this manner Willis came to the conclusion that the fifth pair of cranial nerves differed from those previously mentioned, in being partly sensory. Further, where a nerve is *entirely* distributed upon a surface adapted to receive impressions of a *special* kind, as that of the Schneiderian membrane, the retina, or the membrane lining the internal ear, it may be inferred that it is not capable of transmitting any other kind of impressions; for experiment has shown that the *special sensory* nerves do not possess common sensibility. The case is different, however, in regard to the sense of taste, which originates in impressions not far removed from those of ordinary touch; and it is probable that the same nerves minister to both. Anatomical evidence of this kind is valuable also, not only in reference to the functions of a principal trunk, but even as to those of its several branches, which, in some instances, differ considerably. Thus, some of the branches of the par vagum are especially motor, and others almost exclusively afferent; and anatomical examination, carefully prosecuted, not only assigns the reasons for these functions, when ascertained, but is almost in itself sufficient to determine them. Thus the superior laryngeal nerve is distributed almost entirely upon the mucous surface of the larynx, the only muscle it supplies being the crico-thyroid; whilst the inferior laryngeal or recurrent is almost exclusively distributed to the muscles. From this we should infer that the former is an afferent, and the latter an efferent, nerve; and experimental inquiries (hereafter to be detailed) fully confirm this view. In like manner it may be shown that the glosso-pharyngeal is an afferent nerve, since it is distributed to the *surface* of the tongue and pharynx, and not to the muscles of those parts; whilst the pharyngeal branches of the par vagum are chiefly, if not entirely, motor. Lower down, however, the branches of the glosso-pharyngeal cease, and the œsophageal branches of the par vagum are distributed both to the mucous surface and to the muscles; from which it may be inferred that they are both afferent and motor—a deduction which experiment confirms.

We perceive, therefore, that much knowledge of the function of a nerve may be obtained from the attentive study of its ultimate distribution: but it is necessary that this should be very carefully ascertained before it is made to serve as the foundation for physiological inferences. As an example of former errors in this respect, may be mentioned the description of the portio dura of the seventh, at first given by Sir C. Bell: he stated it to be distributed to the skin as well as to the muscles of the face, and evidently regarded it as in part an afferent nerve, conveying respiratory impressions as well as motions. In the same manner, from inaccurate observation of the ultimate distribution of the superior laryngeal nerve, it was long regarded as that which stimulated to action the constrictors of the glottis. But the knowledge obtained by such anatomical examinations alone is of a very general kind; and requires to be made particular,—to be corrected and modified,—by other sources of information. One of these relates to the connection of the trunks with the central organs. The evidence derived from this source, however, is seldom of a very definite character; and, in fact, the functions of particular divisions of the nervous centres have been hitherto rather judged of by those of the nerves with which they are connected, than the latter have been determined by the former. Still, this kind of examination is not without its use, where there is reason to believe that a particular tract of fibrous structure has a certain function, and the office of a nerve whose roots terminate in it is doubtful. Here again, however, very minute and accurate examination is necessary before any sound physiological inferences can be drawn from facts of this description; and many instances might be adduced to show that the real connections of nerves and nervous centres are often very different from their apparent ones.

Experimental inquiries into the functions of particular nerves are also liable to give fallacious results, unless they are prosecuted with a full knowledge of all the precautions necessary to insure success. Some of these will be here explained. Suppose that, upon irritating the trunk of a nerve, whilst still in connection with its centre, muscular movements are excited; it must not be hence concluded that the nerve is an efferent one, for it may have no *directly* motor powers. The next step would be to divide the trunk, and to irritate each of the cut extremities. If, upon irritating the end separated from the centre, muscular contractions are produced, it may be safely inferred that the nerve is, in part at least, of an efferent character. Should no such result follow, this would be doubtful. If, on the other hand, muscular movement should be produced by irritating the extremity nearest the centre, it will then be evident that it is occasioned by an impression conveyed *towards* the centre by *this* trunk, and propagated to the muscles by some other; in other words, to use the language of Dr. M. Hall, this nerve is an excitor of motion, not a direct motor nerve. The glosso-pharyngeal nerve has been satisfactorily determined to be a purely afferent nerve by experiments of this kind performed by Dr. J. Reid.

It is from the want of a proper mode of experimenting that the functions of the *posterior* roots of the spinal nerves have been regarded as in any degree motor. If they be irritated, without division of either root, motions are often excited; but if they be divided, and their separated trunks be then irritated, no motions ensue; nor are any movements produced by irritation of the roots in connection with the spinal cord, if the *anterior* roots have been divided. Hence it appears that the motor powers of these fibres are not direct, but that they convey an impression to the centre, which is reflected to the muscles through the anterior roots. Another source of fallacy is to be guarded against, arising from the communication to a nerve, in its course, of properties it did not possess at its root, by inosculation with another nerve. Of this many instances will hereafter present themselves.

The same difficulties do not attend the determination of the *sensory* properties of nerves. If, when the trunk of a nerve be pricked or pinched, the animal exhibits signs of pain, it may be concluded that the nerve is sensible to ordinary impressions at its peripheral extremity. But not unfrequently this sensibility is derived by inosculation with another nerve, as is the case with the portio dura, which is sensory after it has passed through the parotid gland, having received there a twig from the fifth pair. A similar inosculation explains the apparent sensibility of the *anterior* roots of the spinal nerves. If these be irritated, the animal usually gives signs of uneasiness; but if they be divided, and the cut ends nearest the centre be irritated, none are exhibited; whilst they are still shown, when the farther ends are irritated, but not if the posterior roots are divided. This is explained by the fact that, from the point of junction of the two roots, sensory fibres derived from the posterior root pass backwards (or towards the centre) in the anterior; and thus its apparent sensory endowments are entirely dependent upon its connection with the posterior column of the spinal cord, through the posterior roots.

The fallacies to which all experiments upon the nerves are subject, arising from the partial loss of their powers of receiving and conveying impressions, and of exciting the muscles to action, after death, are too obvious to require particular mention here; yet they are frequently overlooked. Of a similar description are those arising from severe disturbance of the system, in consequence of operations, which also have not been enough regarded by experimenters.

Nature of the changes in the nervous system.—Of the actual nature of the changes by which impressions are received upon the peripheral origins of the afferent nerves, or communicated to the central origins of the motor, and are conducted along each to their opposite extremities, physiologists have no certain knowledge. That they are electrical has been, and still continues to be, a favourite theory with some: and that there is a great *analogy* between the propagation of nervous and that of electrical influence cannot be denied. But the reasons in favour of their *identity* are not greater than those which might be adduced to prove that nervous influence is identical with other physical forces; since mechanical and chemical stimulation will, equally with electricity, imitate to a certain extent the natural changes in this system. On the other hand, there are many valid reasons against such a supposition; of which one is, that by putting a ligature round a trunk, its functions as a conductor of nervous influence are paralysed, whilst it is still capable of conveying electricity. The various fibrils, too, are not as completely insulated from each other in regard to the passage of electricity, as we know them to be in respect to nervous agency. To the influence (whatever its nature may be) which the nerves convey, the term *vis nervosa* has been provisionally applied; and it is convenient to employ a term of this nature, when the laws according to which it operates are being specified. It must be remembered, however, that nothing is really gained by the use of such a term, which resembles one of the unknown quantities in algebra. It is quite possible that the changes in the afferent nerves may differ from those that take place in the efferent; and that the changes which convey some kinds of impressions through the former may differ from those concerned in others. No real progress is made, therefore, by attributing any phenomena of the nervous system to the vis nervosa; any more than by referring the various material changes in the organism to the operation of the *vital principle*. The laws according to which these changes take place are, however, legitimate subjects for physiological investigation. Those regulating the propagation of nervous agency may be briefly stated as follows. They evidently result from the facts already mentioned respecting the isolated character of each fibril, and the identity of its endowments through its whole course. They are here stated, with some modification, in the language of Müller.

1. When the whole trunk of a sensory nerve is irritated, a sensation is produced, which is referred by the mind to the parts to which its branches are ultimately distributed; and if only part of the trunk be irritated, the sensation will be referred to those parts only supplied by the fibrils it contains. This is evidently caused by the production of a change in the sensorium, which corresponds with that which would have been transmitted from the peripheral origins of the nerves, had the impression been made upon them. This change only requires the integrity of the afferent trunk between the point irritated and the sensorium; and is not at all dependent upon the state of the extremity to which the sensations are referred. This may have been paralysed by the division of the nerve; or altogether separated, as in amputation; or the relative position of its parts may have been changed. It results from the foregoing, that, when different parts of the thickness of the same trunk are separately subjected to irritation, the sensations are successively referred to the several parts supplied by these divisions. This may be easily shown by compressing the ulnar nerve, in different directions, where it passes at the inner side of the elbow-joint.

2. The sensation produced by irritation of a branch of a nerve is confined to the parts to which that branch is distributed, and does not affect the branches which come off from the nerve higher up. The rationale of this law is at once understood; but it should be mentioned that there are certain conditions in which the irritation of a single nerve will give rise to sensations over a great extent of the body. This is due, however, to a particular state of the central organs; and not to any direct communication among the sensory fibres.

3. The motor influence is propagated only in a centrifugal direction, never in a retrograde course. It may originate in a spontaneous change in the central organs: or it may be excited by an impression conveyed to them by afferent nerves; but in both cases its law is the same.

4. When the whole trunk of a motor nerve is irritated, the muscles which it supplies are caused to contract; and when only a part of the trunk or a branch is irritated, the contraction is produced only in the muscles which receive their nervous fibres from it. This contraction evidently results from the similarity between the effect of an artificial stimulus applied to the trunk in its course, and that of the change in the central organs by which the vis nervosa is ordinarily propagated. In this instance, as in the other, there is no lateral communication between the fibrils.

ARSENIC IN SULPHURIC ACID.

To the Editor of the Medical Gazette.

SIR,

A MEDICAL friend of mine yesterday pointed out to me a letter, dated the 3d instant, in the MEDICAL GAZETTE of Friday last (Feb. 5), by Mr. G. O. Rees; wherein that gentleman announces the fact of the sulphuric acid of commerce being contaminated with arsenic. He states that the proportion of oxide of arsenic which he has found in twenty fluid ounces of the acid, procured from an operative chemist in London, is 22·58 grains, and that he has found even a greater proportion in some obtained from the Apothecaries' Hall. I beg to remark, that this fact of the contamination of the sulphuric acid obtained by the combustion of the sulphur of pyrites instead of Sicilian sulphur, though, as would be inferred from Mr. Rees's letter, not generally known about London, yet has been known for many months by the more intelligent of the manufacturing chemists of this neighbourhood; and that in the early part of last year, Mr. H. Blair, an extensive manufacturer of the acid, obtained, in conjunction with myself, a patent for improvements in the manufacture of sulphuric acid, part of which improvements consist in the separating, in the course of manufacture, the arsenic contained in pyrites sulphuric acid. Mr. Blair, at his Works, adopts the process alluded to for separating the arsenic, though less extensively than he intends to do as soon as he has made more extensive arrangements: it is effectual in making the acid sufficiently pure for the several purposes to which it is applied in the arts and manufactures, in many of which the unpurified acid cannot be advantageously used.

The smallest proportion of oxide of

arsenic which I have found in twenty fluid ounces of the unpurified pyrites acid is 35½ grains. The proportion is often considerably more.

An instance occurred a few months ago, not far from here, of an operative having nearly lost his life in consequence of the inhalation of arseniuretted hydrogen produced in the manufacture of hydrochloric acid, by the diluted unpurified pyrites sulphuric acid acting upon the iron retort employed.

In conclusion I may add, that I have had a paper, dated Jan. 25, 1841, read at a meeting of the Philosophical Society of Manchester, "On detecting the Presence of Arsenic, particularly in reference to the employment of Marsh's test;" in the course of which I mentioned the great necessity of minutely examining the sulphuric acid used, on account of that of commerce being strongly impregnated with arsenic. I also mentioned the necessity of examining any hydrochloric and nitric acid which might be used, these being also liable to be impregnated with arsenic.—I am, sir,

Your obedient servant,
Henry Hough Watson,
Consulting Chemist.

Bolton-le-Moors, Feb. 10, 1841.

P.S.—Since writing the above I have found 1000 grains by weight, of a sample of commercial sulphuric acid, specific gravity 1·845, to contain 5½ grains of oxide of arsenic. And as the weight of 20 fluid ounces of acid of this specific gravity is 17712 grains, it follows that the weight of oxide of arsenic in the same is 97·416 grains.

Feb. 15, 1841.

KING'S COLLEGE HOSPITAL REPORT FOR 1840.

By Wm. Augustus Guy, M.B. Cantab.
Professor of Forensic Medicine, King's College, London, and Assistant-Physician to the King's College Hospital.

[*For the Medical Gazette.*]

In order that the facts contained in this report may be received at their true value, it will be necessary to make a few remarks by way of preface. The hospital was opened for the admission of patients April 15, 1840; and the report embraces the period which elapsed from that date to December 31—a period of upwards of eight months. The facts are taken from the tabular forms prepared for the registry both of the in and out-patients. These forms consist of the following headings:—Name; Residence; Parish; By whom recommended; Medical Attendant; Number of Ward; Age; Married or Single; Occupation; Disease; Assigned Cause; Date of Discharge; Event of Disease; with a column of remarks. The same form has been made to serve for all the patients.

The record of the in-patients, when they amount to a sufficient number, will furnish many interesting and useful particulars illustrative of the prevalence of different diseases, their nature, and their fatality; that of the out-patients must necessarily be incomplete, as the event of the disease can rarely be known. The age, sex, occupation, and disease of the out-patients, are the only points which can be correctly and uniformly ascertained; but these alone, after a term of years, may be expected to yield much interesting information. The form for the out-patients is filled up at the first visit of each patient by the clerk for the out-patient physician or surgeon: the in-patient register is kept by the clinical clerk, who fills up the tabular form from the case books. Urgent cases are registered by the resident medical officers.

Those who have had any experience of hospital records will be prepared to expect the occasional omission of cases from registers kept by more than one individual; indeed it would be unreasonable to expect an equal degree of care and accuracy from all who are employed in keeping such records, and much is accomplished if the greater part of the cases are accurately registered. By far the majority of the cases have been entered on our books, and are available for statistical purposes. Wherever any doubt has existed as to the real name of a disease, the case has been omitted from the report. I must also add that care has been taken not to enter the same patient twice, in consequence of his having been transferred from the in-patients to the out-patients, or from the out-patients to the wards of the hospital. The report, therefore, merely states the diseases or accidents occurring among the patients entered on the register, and not the total number of cases under treatment.

In preparing the report, I have had before me Dr. Willan's reports of the Carey Street Dispensary, published quarterly in the Edinburgh Medical and Surgical Journal, the report of the Registrar-General, and Major Tullock's army returns. It will be seen that I have not followed any of these authorities implicitly, though I have derived some aid from each of them. I have not thought it necessary to state my reasons for the arrangement I have adopted, nor to defend the mixed nomenclature which I have used. Both the one and the other admit of much improvement, and will be more or less modified in future returns. The diseases are thrown into groups, which are named in the general abstract. This is done rather for the sake of convenience than because the diseases thus thrown together have any very close connection. A sufficiently minute subdivision has been adopted, in order that the report may, without much difficulty, be compared with other similar returns.

There now only remains to make one or two short observations on some of the diseases, or groups of diseases, contained in the table.

Febris continua.—The febrile affections included under this head were, for the most part, of a mild character: a few only were admitted into the house, and the rest were treated as out-patients. A small proportion might be correctly designated by the term typhus.

Febris infantum remittens.—This head includes all the febrile affections of children dependent on functional disorders of the stomach and bowels, and contains some cases entered under the title marasmus. The remittent character of the fever is marked in different cases with different degrees of distinctness, and sometimes assumes a continued form. Febris infantum might be preferable in some cases; but I have followed the example of Bateman in using the term febris infantum remittens.

Muscular rheumatism.—This head includes many cases of muscular pains confined to one part of the body. Females are peculiarly subject to such local affections; and hence the larger number of cases of muscular rheumatism occurring in that sex.

Articular rheumatism.—This head, too, includes other cases besides the so-called acute rheumatism, or rheumatic fever, and there is no doubt that some of them might have been, almost with equal propriety, classed with gout.

Melancholia includes a case of suicidal monomania, first treated as an out-patient, and subsequently admitted into the hospital for an attempt to poison himself by laudanum.

Phthisis.—This head presents so marked an excess of males over females, that there is room to doubt whether or not the disease has been correctly entered. As by far the majority of these cases were out-patients, the correctness of the diagnosis could not be tested by the result; and the greater facility of examining the chest of males leads to many cases of phthisis being detected in the male which may possibly have been entered as bronchitis in the female. As, however, the excess of cases of bronchitis in the female is considerably less than the excess of cases of phthisis in the male, and as I have very little doubt of the correctness of my diagnosis in the majority of the cases, I cannot help regarding the number stated as a near approximation to the true proportion.

Dyspepsia and gastritis mucosa.—The term dyspepsia embraces many different forms of chronic affection of the stomach: that of gastritis mucosa is restricted to inflammation of the mucous membrane of the stomach, as determined by pain of the epigastrium, increased by pressure; pain immediately after eating, accompanied with nausea or vomiting; and a red tongue, or tongue furred in the centre, and red at the tip and edges. These cases are readily cured by a strict farinaceous diet, and gentle aperient medicines, if the bowels require them. More active treatment is rarely necessary.

Gastro-enteritis mucosa.—The so-called English cholera; a disease which commonly yields to the same simple treatment as the last named disorder.

Diarrhœa.—This includes some cases which might more aptly be termed enteritis mucosa. When recent it rarely requires any treatment beyond a regulation of the diet, though it is usual to administer purgatives, or astringents, or both. In the report of the Registrar-General, diarrhœa is classed with the epidemic, endemic, and contagious diseases.

The general headings, diseases of the heart, diseases of the skin, &c. apply to cases in which the precise seat or name of the disease was not registered.

Imperfect as this and all similar reports must be, in the present state of our knowledge, it may possibly supply some data which may be advantageously compared with other returns of a similar kind. There is at present a great want of information as to the prevalence of those diseases which do not terminate fatally; and this information can only be supplied from registries of the out-patients as well as the in-patients of our hospitals and dispensaries. If this report, then, have no other value than as an example, it will not be thrown away. The proper title of the report will be the following:—

Analysis of 4250 Registered Cases of Disease, treated at the King's College Hospital. from April 15th to December 31st, 1840.

	Male.	Fem.	Tot.
Febris continua	24	35	59
—— intermittens	2	2	4
—— ephemera	8	10	18
—— dentitionis	10	19	29
—— infantum remittens	44	33	77
Catarrhus	24	39	63
Pertussis	10	14	24
Variola	2	1	3
Varicella	6	7	13
Rubeola	1	3	4
—— sequelæ	3	6	9
Scarlatina	4	12	16
—— sequelæ	3	6	9
Erysipelas	13	12	25
Struma	29	45	74
Debilitas	10	14	24
Purpura hæmorrhagica	1	1	2
Plethora	1	6	7
Podagra	22	3	25
Anasarca	7	15	22
Ascites	8	2	10
Œdema	0	2	2
Muscular Rheumatism	94	129	223
Pleurodynia	7	8	15
Articular Rheumatism	31	17	48
Epilepsy	12	14	26
Chorea	2	6	8
Hysteria	1	50	51
Convulsions	10	19	29
Delirium tremens	1	0	1
Drunkenness	1	0	1
Diseases of the spine	4	7	11
Hemiplegia	4	1	5
Paralysis	18	7	25
—— agitans	4	1	5
Wasting of the muscles of the hand	1	0	1
Aphonia	1	0	1
Neuralgia	3	12	15
Hemicrania	1	0	1
Sciatica	5	1	6
Pain in the feet	2	1	3
Melancholia	4	1	5
Imbecillitas	1	0	1
Determination of blood to the head	4	4	8
Apoplexy	3	2	5
Vertigo	3	9	12
Cephalæa	26	47	73
Disease of Brain	0	1	1
Cynanche tonsillaris	9	9	18
Tonsillitis	11	26	37
Laryngitis	2	4	6
Cynanche parotidea	2	1	3
Œdema of glottis	0	1	1
Bronchocele	0	3	3
Ulcer of tongue	2	0	2
Diseases of the salivary glands	0	6	6
Bronchitis	123	163	286
Pneumonia	6	1	7
Pleuritis	1	0	1
Pleuro-pneumonia	2	0	2
Dyspnœa	0	2	2
Tussis	3	8	11
Asthma	2	3	5
Phthisis	101	43	144
Hæmoptysis	8	5	13
Emphysema	2	2	4
Gangrene of the lungs	1	0	1
Diseases of the heart	5	6	11
Hypertrophy	5	0	5
Palpitation	3	10	13
Aneurism of the aorta	1	0	1
—— arteries	1	0	1
Dyspepsia	46	135	181
Gastritis mucosa	3	29	32
Gastrodynia	3	8	11
Hæmatemesis	3	14	17
Bulimia	1	0	1
Scirrhous pylorus	1	0	1
Gastro-enteritis mucosa	3	12	15
Diarrhœa	41	58	99
Melæna	0	2	2
Constipation	49	107	156
Colic	0	1	1
Colica pictonum	8	0	8
Tormina	2	1	3
Tympanites	0	1	1
Hæmorrhoids	6	7	13
Prolapsus ani	3	4	7
Stricture of the rectum	0	1	1
Peritonitis	0	1	1
Abdominal tumour	1	0	1
Vermes	1	1	2
Ascarides	11	27	38
Tænia	4	6	10
Lumbrici	1	0	1
Diseases of liver	4	0	4
Icterus	6	5	11

	Male.	Fem.	Tot.
Diseases of the kidney	6	0	6
Nephritis	1	0	1
Hæmaturia	1	0	1
Diabetes	1	0	1
Irritable bladder	2	1	3
Dysuria	1	2	3
Incontinence of urine	1	3	4
Retention of urine	2	1	3
Calculus	2	1	3
Syphilis	45	35	80
Gonorrhœa	111	43	154
Bubo	10	8	18
Excoriations	7	4	11
Other diseases of male organs of generation	58	0	0
Secondary syphilis	28	14	42
Periostitis	12	7	19
Diseases of bone	5	3	8
——— teeth and gums	5	6	11
——— joints	19	22	41
Diseases of the eye and its appendages	38	48	86
——— ear	11	1	12
——— nose	2	2	4
Skin diseases	15	26	41
Strophulus	0	2	2
Lichen	1	2	3
Prurigo	4	1	5
Lepra vulgaris	2	4	6
—— syphilitica	2	11	13
Psoriasis	6	15	21
Pityriasis	0	2	2
Urticaria	7	5	12
Erythema	0	2	2
——— nodosum	1	6	7
Impetigo	0	3	3
Porrigo	32	31	63
Ecthyma	1	1	2
Scabies	35	32	67
Herpes	18	8	26
Rupia	1	1	2
Eczema	12	9	21
Aphthæ	3	2	5
Acne rosacea	1	2	3
Lupus	1	0	1
Nævus	1	2	3
Phlegmon	30	17	47
Abscess	31	36	67
Anthrax	4	0	4
Ulcers of the leg	81	76	157
——— other parts	21	18	39
Gangrena senilis	0	2	2
Fistula in ano	5	5	10
Varicose veins	5	14	19
Tumors	8	15	23
Enlarged and inflamed bursæ	6	21	27
Hernia	12	7	19
Malformations	1	3	4

	Male.	Fem.	Tot.
Wounds	38	25	63
Burns and scalds	18	11	29
Contusions and sprains	115	78	193
Concussion	1	0	1
Dislocations	2	6	8
Fractures	39	22	61
Other accidents	3	1	4
Cut throat	4	0	4
Poisoning with preparations of opium	3	2	5
Starvation	1	0	1

Diseases of Females.

Anæmia, chlorosis	19
Hyperlactatio, mimosis inquieta	11
Amenorrhœa	48
Irregular menstruation	2
Dysmenorrhœa	6
Menorrhagia	33
Leucorrhœa	34
Purulent discharge from the vagina of children	4
Pregnancy	4
Abortus	6
Prolapsus uteri	11
Diseases of uterus	2
Diseases of the mammæ	13
Carcinoma of vagina	1
Total,	194

General Abstract.

Febrile affections	112	138	250
Contagious exanthemata	32	47	79
Hooping-cough	10	14	24
Struma, gout, &c.	63	69	132
Dropsies	15	19	34
Rheumatic affections	132	154	286
Convulsive diseases	27	89	116
Paralytic affections	32	16	48
Neuralgic affections	11	14	35
Mental disorders	5	1	6
Diseases of the brain	36	63	99
——— throat, larynx, &c.	26	50	76
——— lungs	249	227	476
——— heart and arteries	15	16	31
——— stomach	57	186	243
——— intestines, including worms	129	228	357
——— abdominal cavity	1	1	2
——— liver	10	5	15
——— urinary organs	17	8	25
Venereal diseases	201	104	305
Other diseases of male organs of generation	58	0	0
Diseases of bones, joints, teeth, &c.	41	38	79
——— the organs of sense	51	51	102
Skin diseases	183	218	401

	Male.	Fem.	Tot.
Inflammation and its consequences	172	154	326
Tumors, &c.	32	60	92
Accidents and external injuries	216	143	359
Attempts at suicide	7	2	9
Starvation	1	0	1
Diseases of females	0	194	0
	1941	2309	4250

REMARKS

ON THE

PHYSIOLOGY OF THE ORBITAL OBLIQUE MUSCLES, AND ON STRABISMUS.

By Edward Hocken, M.D.

(For the London Medical Gazette.)

The diversity and direct contradiction which exists in the received opinions concerning the normal functions of the oblique muscles, incontestibly prove that but little sound discretion has been employed in this investigation, the results of all of which have been most unsatisfactory. Many physiologists formerly supposed that the superior oblique turned the eyeball upwards: hence the absurd appellation of musculus patheticus which was given it. The principal opinions which are at present extant are, that the superior turns the globe downwards and outwards, whilst the inferior directs it upwards and inwards; second, Mr. Duffin tells us that the superior rotates it downwards and inwards, the inferior in the contrary direction, viz. upwards and outwards: in his book on the subject he says, "towards the nasal canthus, and upwards:" third, Mr. Walker asserts that the superior oblique turns the axis of the eye, that is to say, the pupil, directly inwards; the inferior in the precisely opposite direction, and likewise turns it inwards; fourth, some learned individuals imagine that the superior turns the eye upwards and inwards; and so divide, or attempt to divide, it in convergent strabismus, when the eyeball is directed upwards and inwards!

I shall endeavour to overturn the whole of these fanciful theories and statements, giving, at the same time, what I believe to be their true physiology, based on the laws of muscular action and direct experiment.

1st, That muscles can only act in the direction of their fibres, or of that of their tendons, as modified by a pulley.

2d, That when acting over a sphere, or the segment of a sphere to which they are attached, the spherical body itself will receive a rotatory motion in compliance with the foregoing law; the fixed attachments being approximated, and the sphere rotated, to the extent and in the direction allowed by such connections.

3d, That a corresponding and antagonizing power, acting in the opposite direction exactly, would rotate such a body back again through the same arch, and carry it (supposing its sphere of action similar) to a corresponding distance in the opposite course.

4th, That both forces acting simultaneously would exactly antagonize each other, giving rise to a new force, the medium of the two, and thus causing traction in the intermediate direction of the two previously existing powers.

On these foundations I will base the following deductions and experiments. The tendon of the superior oblique runs obliquely backwards and outwards in the orbit, from its cartilaginous pulley in the frontal bone, to the junction of the posterior and middle thirds of the sclerotica, and curved in correspondence to the convexity of the eyeball. The inferior arises from the superior maxillary directly opposite to the pulley of the superior, and also passes obliquely dorsal and lateral to the junction of the posterior and middle thirds of the sclerotica, adapted in its curve to the under and lateral surfaces of the globe, and separated by rather more than half an inch from the tendon of the superior: it is in this interval that the ciliary nerves perforate the tunica sclerotica. Hence we shall see that the posterior, superior, and outer surface of the sclerotica, will be approximated to the orbital edge of the frontal bone, close to the inner canthus of the eye, by contraction of the superior oblique; and that the posterior, inferior, and outer part, will be drawn towards the orbital edge of the superior maxilla, opposite to the pulley of the superior oblique, by contraction of the inferior oblique muscle; the curved conditions of the tendons imparting a corresponding rotatory motion to the sphere over which they act.

The motions thus imparted to the

eyeball and pupil are the following, when no counteracting force is in existence:—The superior oblique rotates the globe obliquely downwards, inwards, and then outwards, bringing the posterior and outer part inwards and superficially, and carrying the lower and outer part upwards and more deeply in the orbit. In this course the pupil is carried, from its natural position in the centre of the orbit, slightly nearer the nasal side, in a curved direction downwards, inwards, and finally outwards. The inferior oblique rotates the globe from the position in which it was left by the superior, upwards, inwards, and then outwards; or, if it commence whilst the pupil retains its normal axis, in a curved direction upwards, inwards, and outwards, and *vice versâ;* the pupil, during this motion, being directed in a similar curved manner; the final action of each being to turn the globe and pupil outwards, the superior downwards, the inferior upwards.

The following experiments may serve to prove that such is in truth the real action of these muscles separately[*], bearing in mind the laws of muscular action with which I commenced this paper.

Exp. 1.—In a recent subject, expose the tendon of the superior oblique just after it has passed through its cartilaginous pulley in the frontal bone, without disturbing the situation of the globe; or, to ensure accuracy, let the muscle be dissected just before its tendon enters the pulley, and traction be employed in the natural direction. During the continuance of this force we find that the eyeball is rotated on an oblique axis, and that the globe and pupil become directed as previously described, being finally turned downwards and outwards. The same experiment may also be performed on the inferior oblique. The best mode of accomplishing these experiments is the following: feel for the trochlea of the superior oblique, immediately internal to the super-orbital notch or foramen, and make an oblique incision over its course of about an inch in extent, and then carefully divide the cellular tissue, muscular fibres, and fibrous expansion of the tarsal cartilages running to the orbital edge; and thus we bring into view the tendon of the superior oblique running outwards and backwards, which may be readily taken up by a convenient hook, and thus traction exerted on the globe. If it be taken up internal to the pulley, depress the eye-ball, and follow the muscle slightly backwards within the orbit lying superior to the rectus superior; a hook, with its point directed from below upward, and from without inwards, will easily include its tendon.

Exp. 2.—Take an apple or an orange, and cut off a thin slice from its anterior surface, holding the portion corresponding to the eye of the fruit forwards; then place a tack, with a circular flat head, in the centre, but rather nearer its inner than outer side, and affix to the junction of the posterior and middle thirds of its circumference two narrow slips of paper or ribbon, placed exactly in the oblique course held by the two oblique muscles, alternately making traction with each, and observe the direction given to the fruit, and to the circular head of the tack which corresponds to the pupil: it will be that oblique rotation which I have already described.

Exp. 3.—We can even put the obliqui in action, and observe the effects, in our own persons: close one eye, and steadily regard some object placed immediately in front, with the other; we find that we possess the power of rotating the eye downwards, inwards, and then outwards; regularly so at first, but after the organ has reached the centre the rectus internus interferes, and then it is carried suddenly downwards and outwards: by a counteraction it is carried backwards, performing an oblique rotation upwards, inwards, and then upwards and outwards. No such rotation can take place on the outer side of the eye, in any direction: the eye-ball stops abruptly when directed upwards and outwards, at the outer canthus, or downwards and outwards.

We will now consider the combined operation of these muscles. If both act simultaneously no rotation can occur, but the globe will be drawn in the medium direction of the two opposing forces: hence it will be drawn forwards, and compressed inwards, against the os planum of the ethmoid, producing elongation of the axis of the globe in proportion to the violence or force exerted by the obliqui. Do we not produce this very action when we endeavour to distinguish distant objects? I am sure that any one will be conscious that it is so, if he make the effort in his own person. We are conscious, during this effort, that the eyeball is thrust forwards, and at the same time compressed. Their combined action is thus obviously to antagonize the recti muscles, since the obliqui elongate the axis of the eye-ball, draw it inwards, and thrust it forwards, altering the figure of the globe to adapt it in viewing distant objects; whilst, on the contrary, the combined action of the recti is to retract the eye-ball within the orbit, and to shorten its antero-posterior axis, adapting it as an optical instrument to view near bodies. In this case, as in all other similar instances, if we weaken or destroy one force, the antagonizing power will gain the mastery, and hence the eye would project unnaturally from division of the recti, or morbidly increased action in the obliqui;[*] or on the contrary be retracted abnormally from section or paralysis of these latter muscles, or increased action of the recti.

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[*] The experiments performed recently on living dogs, &c. to determine the normal actions of these muscles, are, I believe, quite useless, from the differences which exist in their anatomy, &c. We even find Mr. Duffin remarking that, "So far as may be inferred from the foregoing experiments, very little of a conclusive nature can be deduced," in answer to his own question of the uses of the superior.

It is well known that certain occupations and employments will eventually modify the usual distance of correct vision; and this is effected by an alteration in the balance of these antagonizing muscles, alteration in the shape of the globe from their habitual action, and probably some adaptation of the retinal function to meet existing circumstances: thus the sailor acquires presbyopic or long vision, by the constant habit of eagerly searching the distance for objects which he either desires or dreads; the mechanic becomes myopic, or near-sighted, from the minute and careful vision which accuracy of adaptation, and perfection in finish, require in operating on small and delicate bodies or substances.

Pathology of the obliqui in strabismus[†].—If a squinting eye be unusually prominent, it follows as a matter of induction that the obliqui are overpowering the recti muscles, provided that no mechanical cause is producing exophthalmos, or the globe is not enlarged from hydrophthalmia[*]. But this loss of balance in their actions may be occasioned either by deficient power in the recti, or excessive in the obliqui, or, if the globe be obliquely prominent, by the excessive action of only one of the latter muscles: hence follows the question, is it ever necessary to divide one or both oblique muscles under these circumstances? It may be so, but in all the cases that I have myself seen, or heard of from friends, no such necessity existed: it might, however, be employed should the organ remain prominent after division of the appropriate rectus; at all events it would not be quite rational to divide the superior oblique when the eye is turned upwards and inwards.

Few, I should imagine, would wish to contend with Mr. Elliot for the merit of having first introduced the double operation in all cases of strabismus, whether single or double; yet, strange to say, both Messrs. Guthrie and Duffin have asserted their claims to what either of these gentlemen would avoid in practice. The double operation is applicable only to four forms: first, in those cases where the opposite eye becomes considerably inverted on covering it; secondly, in habitually double strabismus; thirdly, where the strabismus is transferred to the originally sound organ, although removed at the time of the operation[†]; fourthly, where some inversion of the squinting eye remains after complete division of every mechanical inverting cause; becoming straight by excluding the other from light.

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[*] I am speaking of division. &c. of both muscles; one would cause the globe to project obliquely: hence the explanation of the projection of the eye-ball from the division of one muscle in Mr. Duffin's experiments on dogs.

[†] Mr. Hall, in his paper on Strabismus, in the MEDICAL GAZETTE for Jan. 23d, which contains many valuable facts, has made perfectly free with the author's ideas on the etiology, pathology, and form; and this without one word of acknowledgment. In many cases he quoted nearly word for word: for instance, "An ulcer of the cornea may be the first originating cause of strabismus, &c. &c., the diagnosis of double squint, &c.; and yet calmly palms them off as "the result of his own original experience." My papers were published in September and November. By the by, Dr. Watson, in his Lectures on Medicine, mentions amaurosis as originating from hysteria, and gives a case in illustration: the only mention of his source of information is contained in the following passage:—"Amaurosis has been spoken of as arising from hysteria." The author was the first to mention and describe such a symptom: he detailed a case in the Lancet for Nov. 1839, and treated of the symptoms, diagnosis, prognosis, &c. of its chronic variety, in the same journal, for August 1840.

[*] These may always be diagnosticated by their own peculiar symptoms.

[†] Vide author's paper, in MED. GAZ. Nov. 13, 1840, vol. i. 1840-1, p. 285.

But there is one practical deduction at which I have arrived which I should wish to enforce, namely, that where sufficient evidence of the necessity for a double is not afforded at the time of its single performance, and yet the strabismus returns in the opposite eye, little time should be lost in operating on this also; for if a considerable interval be allowed to intervene, the habitual consent of mutual action is the condition of squinting; and on coming to operate on the secondarily affected eye, the previously deranged organ will be found to be in the same relation to it which the originally healthy organ held to the originally squinting eye; viz. it will be inverted, or prevent the complete rectification of its fellow, and thus again call for a double operation. For the laws regulating the mutation of strabismus, *vide* the author's paper in the MEDICAL GAZETTE, already referred to.

No doubt can now exist that fibres of condensed cellular tissue occasionally prevent the complete success of the division of the rectus tendon, yet I have no doubt that in many of the cases thus circumstanced the connecting medium would be found to be an undivided portion of the tunica albuginea, which, in fact, is but condensed cellular tissue, uniting the opposed edges of the four recti tendons, and not the submuscular cellular tissue itself. This connecting medium passes in the form of arches from one tendon to the other, their concavity being directed backwards, and thus a small portion of the superior or inferior cornu of the arch being left undivided, would be drawn backwards by the action of the muscle, and simulate the subtendinous or muscular tissue.

Strabismus may be simulated by opacities of the outer or inner circumference of the cornea*. The eyeball is in truth holding its proper axis, and the pupil its normal situation, but a portion of the outer or inner circumference of the cornea is occluded by a dense opacity, giving rise to the appearance of either an external or an internal squint, since the apparent (transparent) portion of the cornea seems to be turned either too much inwards, or too much outwards, from the opaque part not being readily distinguishable from the white of the eye; and hence the whole globe appears to be affected with divergent or convergent strabismus.

Some months since I had a modification of Mr. Guthrie's knife made for my own use—a similarly-shaped blade, but with a small, flat, and blunt point, which would do away with the necessity of a director. It is to be introduced beneath the tendon after division of the superjacent conjunctiva, whilst its fine sharp edge, continued to the very point, effectually divides every fibre under which it is passed: with it, therefore, there would be no danger of wounding the sclerotica. The conjunctiva must be taken up and divided by a sharp knife or scissors.

Exeter, Feb. 1841.

USE OF SECALE CORNUTUM.

To the Editor of the Medical Gazette.

SIR,

SHOULD you deem the following case of sufficient interest and importance to the medical public to merit a place in your journal, its insertion will oblige

Your obedient servant,
JOSEPH HODGSON.

Spitalfields, Feb. 4, 1841.

Mrs. M., residing at Salvador House, Bishopsgate Street, of fair complexion, and other general characteristics of the strumous diathesis, has been married eight years, and is now 34 years of age. Within twelve months of her marriage, at the full period of gestation, after a tedious labour of forty-eight hours, she was delivered of a living female child. Two years subsequently she miscarried at the fourth month; and then, after eighteen months, gave birth to a still-born child at the seventh month.

On the 17th of May, 1839, she came under my observation, being again threatened with premature labour at the seventh month, which was averted by placing her under favourable circumstances; and her pregnancy continued to the eighth month, when labour came on, and after seven hours the breech descended, with the abdomen towards the sacrum. But notwithstanding the chin was depressed upon the chest, I could not succeed in extracting the head without lessening it by the operation of craniotomy.

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* Mr. Wormald, I believe, first noticed this simulated strabismus.

Taking all the circumstances into consideration, and being of opinion that the pelvis had contracted in size, I desired my patient, the next time she became pregnant, to inform me at the seventh month, in order that I might have an opportunity of bringing on labour at that time, as the only likely means of insuring the birth of a living child. Accordingly, in the middle of November, she informed me that she was then pregnant, and could trace her pregnancy from the middle of June. She continued in very good health during the remainder of the time, up to the 16th of January last, when I found her in good spirits.

Noon, January 16th.—I prescribed pulv. secale cornut. grs. x. 4tis. horis, to six doses. Visited her at nine o'clock in the evening, one hour after taking the third dose. She stated that every dose produced pains in the back, which continued about half an hour, or from that to three quarters.

17th, 10 A. M.—She had taken the sixth and last dose of the medicine, which at that time was causing her pain; and on making an examination I found the os uteri softened, and readily admitting one finger, and then a second, between which I passed the stilet of the female catheter, and ruptured the membranes. Presentation natural, and the child's movements distinctly felt. I then returned home, requesting to be called when pains came on.

5 P.M.—Seven hours from the time the membranes were ruptured, and os uteri fully dilated, the pains became regular; but having waited until half-past seven, and being quite satisfied that they were insufficient to complete the delivery, and also fearing the child would be destroyed by the pressure of the uterus, I mixed pulv. secale cornut. ʒj. in aqua ℥iv.; one third to be given every ten minutes until the uterus acted rigorously: it was not before the third dose had been exhibited that any increase of uterine action took place, and then, at the end of an hour, a female child was expelled, which, with the mother, is now doing well.

REMARKS.—The exhibition of the secale cornutum previously to rupturing the membranes by mechanical means, appears to soften the os uteri, and generally to stimulate the action of that organ; and the practice accords with that recommended by Dr. F. H. Ramsbotham, in his valuable work now in the course of publication. The novel feature in this case is the renewed administration of the secale after the evacuation of the liquor amnii, when the uterus was powerfully contracting, but its expulsive action feeble. To such administration I attribute the preservation of the life of the infant—an opinion in which Dr. Ramsbotham fully concurs.

RARE MALFORMATION OF THE HEART.

To the Editor of the Medical Gazette.

SIR,

SHOULD the following be deemed of sufficient interest to merit publication, you will oblige me by giving it insertion in your journal.—I am, sir,

Your obedient servant,
ALBERT NAPPER.

Guildford, Feb. 1, 1841.

A. W., ætat. five years ten months, a lively, intelligent boy, but rather short of his age. Till he was six months old his mother observed nothing unusual in him, except that his head was rather larger than natural. About that time he received a fall, after which he was affected with cyanosis, and was from that time always subject to dyspnœa, and palpitations of the heart, greatly increased by exertion and mental emotions, as was also the purple hue. He had had measles, hooping-cough, and small-pox: the latter very severely.

A short time since I was requested to see him; when he complained of pain in the head, accompanied with drowsiness, pyrexia, and other symptoms of acute hydrocephalus, which quickly carried him off. On examination of the brain, extensive ramollissement of the right hemisphere, and serous effusion, was found to exist.

Before describing the formation of the heart, which is one of those singular instances of monstrosity but seldom displayed by nature, I must mention a peculiarity, doubtless in connection with it, exhibited by the lungs, which were extremely small and flaccid, and of a bright crimson throughout, but evidently not the effect of inflammatory action, for no other indication of inflammation was present, nor was there any thing during life which at all led to a suspicion of its existence; on the contrary, in expressing a wish to be carried down stairs, he spoke so loud and distinctly, that his mother, who was below, heard every word. His wish was complied with, and within three minutes he was a corpse.

On opening the pericardium, the heart was seen of normal dimensions, with both ventricles contracted, and *both* auricles extremely congested with dark-coloured blood. The parietes were of usual thickness, and the valves natural. In the situation of the foramen ovale was an opening, about half an inch in length and a line in breadth, with a band of fibres, extending across the centre, attached to either lip. Judging from the valvular form of the opening, it is probable that no blood passed through it, except perhaps during the impetus of the circulation from excitement. But another and more remarkable deviation was exhibited in the aorta. The orifice, instead of its usual commencement from the left ventricle, was placed directly over the septum ventriculorum, communicating *equally* with *both* ventricles. The ventricular orifice of the pulmonary artery was extremely contracted, scarcely admitting the large end of a common silver blow-pipe. At a short distance from the origin, the artery became much larger, but had more the appearance of a vein. The sigmoid valves were exceedingly small, but otherwise perfect. From the situation and contracted orifice of this vessel, and from the ready passage of the blood into the aorta, it is evident that but a very small portion of blood could have passed to the lungs; which may account for their being so much below the usual size. Considering the very small quantity of arterialized blood that could have entered into the circulation, it is surprising that this child should have attained the age of nearly six years, have passed through some of the worst diseases of childhood, and that the functions of the system (excepting those above mentioned) should have been naturally performed.

P.S. — There is a case somewhat similar to the preceding related in the Medico-Chirurgical Review for July, 1831, p. 211.

SOME REMARKS

ON

PNEUMONIA IN CONNECTION WITH, OR AS A CONSEQUENCE OF, SURGICAL OPERATIONS AND INJURIES.*

By J. E. ERICHSEN,
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[*For the Medical Gazette.*]

THAT form of pneumonia which occurs in connection with, or as a consequence of, surgical operations and injuries, is, as Sir Charles Bell justly observes, one of those neutral subjects which stands between the provinces of the surgeon and physician, and consequently has received less attention than its frequent occurrence and fatal character entitle it to.

The systematic treatises on surgery with which I am acquainted, are, with few exceptions, silent upon this subject. Some of the older writers, indeed, have noticed that in injuries of the head the lungs occasionally become affected: Morgagni states that Valsalva was induced, by his own observations, to come to this conclusion. In the memoirs of the Académie Royale de Chirurgie cases are mentioned by Quesnay, Bertrandi, and Androuille, of the deposition of pus into the lungs after injuries; but no attention seems to have been paid to inflammation of these organs in similar cases, unless when attended by the formation of abscess. Pott (Chirurgical Works, vol. i. p. 127) relates a case in which a fatal pneumonia followed the operation of the trepan; but he appears to have regarded this as an accidental occurrence, and not as a consequence of the injury of the head.

By the surgical writers of the present day we find that more attention has been paid to this important subject. Dupuytren, in his Leçons Orales, in the article on burns, has pointed out the occurrence of inflammatory affections of the lungs as a consequence of these injuries. Sir Charles Bell, with that justness of observation which characterizes all his inquiries, enters at some length upon this subject in the third number of his "Surgical Observations," where he devotes one report to the consideration of "Pulmonary diseases in connection with local irritation, and consequent upon wounds and surgical operations." After pointing out the importance of this, and of several other subjects, which it is to be wished were better cultivated, he says, "when I look back on former cases, I cannot resist the belief that I have seen patients cut off after operations by a more sudden and acute attack of inflammation of the lungs;" and again, a little farther on, "but inflammation of the lungs is by far the most frequent cause of death in severe wounds, and especially in compound fractures." He then gives several examples of pneumonia following compound fractures, and amputations after gunshot injury. In the first and second numbers of the same work he relates a case of stricture of the urethra, with abscess in the perineum, and also a case of fracture of a dorsal vertebra, in both of which pneumonia was found after death. Guthrie, in his Treatise on Gun-shot Wounds, (3d edit. p. 257) speaks of pneumonia as a cause of death after operations, more especially secondary amputations: he points out the latent character and obscurity of the symptoms of this form of the disease, which he believes to depend upon a determination to, or irritation in, a particular part; and that in each person the organ that is most predisposed to disease is most likely to be affected; "therefore," he says, "among Englishmen, and in Great Britain, the lungs are most liable to be affected."

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* Read before the Medical Society of University College, February 5th, 1841.

Writers on medicine make, as we should expect, but little mention of pneumonia as a consequence of surgical operations and injuries. Dr. Forbes, however, speaks of it in a note appended to his translation of Laennec's work, and Dr. Williams, in his very valuable treatise on diseases of the chest, in the Library of Practical Medicine, enumerates this as one of the varieties of pneumonia.

Under the names of typhoid, bilious, putrid, malignant, scorbutic, erysipelatous, latent, and congestive pneumonia, we find described by various authors, among whom I may enumerate, Huxham (on Fevers, pp. 186-210), Good (Study of Medicine, vol. ii.), Frank (De Cur. Hom. Morb., lib. ii. p. 135), Laennec (3d edit. of Transl., p. 241), Andral (Clinique Médicale), Louis (Recherches, p. 39), Mackintosh (Practice of Medicine), Williams (Cycl. of Practical Medicine, and Library of Medicine, vol. iii. p. 143), Stokes, and Dr. Hudson (Dublin Journal, vol. vii.), a form of this disease which is, I think, analogous to that met with in surgical cases; the difference being rather in the cause that has given rise to the inflammation than in the essential nature of the disease itself.

The observations of Dr. Williams, and of Dr. Hudson, tend to prove that the form of pneumonia usually called typhoid is essentially "a complication of pneumonia, with a superadded passive congestion." "By some unknown cause," says Dr. Williams, "the blood stagnates in particular viscera generally, to some degree, under the influence of gravitation; there is, at the same time, more or less irritation, which may give to the congestion the semblance of inflammation; but neither by the free effusion of plastic lymph, nor by the formation of pus, is a true inflammatory orgasm manifested." That this view of the question is correct, is proved, not merely by the signs and general symptoms, but by the appearance after death. Dr. Williams attributes this stagnation of the blood in particular viscera, either to the altered condition of the blood itself, or of the affected capillaries, or of both. That the proximate cause of that form of the disease which occurs in surgical cases is the same as that of the so-called typhoid pneumonia, cannot, I think, be doubted—the lung, in both cases, being in a state of passive, rather than of active hyperemy. The condition of the system, also, in which typhoid pneumonia is found, is closely allied to that produced by the irritative fever which occurs in patients suffering from severe operations and injuries.

The anatomical characters of these two forms of the disease are also very similar. When the pneumonia is still in the first stage, the part of the lung that is affected will be found of a deep purple, almost black colour; from being gorged with blood it does not collapse as a healthy lung does; it is heavy, and when squeezed comparatively little blood can be forced out, but a frothy, reddish, turbid serum escapes in considerable quantity; it still contains air, being crepitous, and floats in water; the tissue of the lung is, in some cases, softened, breaking down readily under the finger into a pulp, having somewhat the appearance of red-wine lees; in other instances, however, it is increased in density to a greater degree than mere accumulation of blood would occasion, but is still crepitous. When the disease has advanced to the second stage, to that of hepatization, the tissue of the lung is dense, sinks in water, and does not crepitate. When cut into, the sides of the incisions have a smooth uniform aspect, not granular, as in the active form of pneumonia, but presenting the characters of that variety of the disease described by Dr. Williams as "Intervesicular," which he regards as the result of inflammation confined to the vessels and intervesicular tissues, and which MM. Hourmann and Déchambre have shewn to be very common in the pneumonia of the aged (Archives Générales, 1835).

The causes of pneumonia consequent upon operations and injuries are no doubt those which usually give rise to idiopathic inflammations of the lungs, such as cold, transitions of temperature, damp beds, &c.; but, besides these, there are some circumstances which more especially seem to predispose to this form of the disease; such as the long confinement of patients in the vitiated and close air of an hospital, especially when the nature of their complaint obliges them to maintain the recumbent position, the depressing effect of profuse discharges, and of the irritation that attends severe injuries and the greater operations. These circumstances tend to exhaust the energy of the nervous system, and thus favour congestions in internal organs; and of these, the lungs, from their vascular and cellular structure, are more liable to be affected. The recumbent position long continued, by a patient in a state of great debility, must mechanically produce congestion of the posterior part of the lungs. We find this congestion occurring in the more depending part of the surface of the body, and we should, therefore, expect to meet with it in so spongy an organ as the lungs.

For the free circulation of the blood through the lungs, it is necessary that the contractility of the right side of the heart be unimpaired, that the respiratory movements continue, and that certain chemical changes take place in that fluid in its passage through the lungs. Now in persons who have been subjected to any of the depressing influences just enumerated, and in whom the energy of the nervous system is consequently much lowered, the contractility of the heart and of the respiratory muscles must necessarily, as well as that of the muscular system generally, be diminished. The congestion of the lungs, already perhaps existing from the position of the patient, will thus be increased by the right side of the heart being less able to propel its blood through these organs, and to overcome the mechanical congestion and distension of the capillaries in their more depending parts. The chemical changes, which are also necessary for the proper circulation of the blood through the lungs, will be arrested proportionably to the degree of congestion of these organs, and to the weakness of the respiratory movements. Thus the respiratory process being interfered with, and the circulation through the lungs being impeded, these viscera will become more and more congested, and, as the vital powers are diminished, the blood, altered probably in its qualities, is brought more under the influence of the laws of gravity, and tends to accumulate in the more depending parts. We can easily understand how an imperfect degree of inflammatory action may be set up in an organ already disposed to it, by the existence of an anormal quantity of blood in its vessels, more especially in subjects who have been rendered highly irritable, and predisposed to irritative fever, by long suffering and profuse discharge.

Diminished nervous energy, whether arising from the irritation of an operation, from the depressing effect of confinement in a hospital, (and I may mention that Dr. Stokes states typhoid pneumonia to be more common in hospitals than in private practice; and this, no doubt, also holds good with regard to the form of pneumonia following operations and injuries), or profuse suppuration, is, no doubt, one of the chief predisposing causes of this congestive pneumonia. Any circumstance which lowers the energy of the nervous system necessarily causes the respiratory movements to be lessened in activity in proportion to the loss of that nervous influence which is requisite to maintain them; and thus the due performance of the respiratory changes being interfered with, a tendency to accumulation of blood in the lungs is the consequence. We see this to be the case in the operations of the sedative poisons, and in apoplexy; and can easily understand, as I have already said, how the lung, being already congested, the supervention of any irritation will dispose it to run rapidly into an inflammatory state, generally of a low type, as the powers of the system are below their normal standard. The experiments of Dr. J. Reid[*] on Section of the Pneumogastrics bear directly on this point. Dr. Reid has shown that that section of both vagi, by interrupting the nervous circle, which is necessary for the proper performance of respiration, diminishes the frequency of the respiratory movements, which become more prolonged and heaving; the blood consequently becomes less perfectly arterialized, and the animal dies of asphyxia. The congestion of the lungs which takes place in these cases is very apt, if the animal live a sufficient length of time, to run on to pneumonia, and even to gangrene of the lung. The morbid appearances found by Dr. Reid, after division of both vagi, were a congested state of the blood-vessels of the lungs, and an effusion of frothy fluid into the bronchi and air cells. In eight out of seventeen cases, in which he experimented, these appearances were strongly marked; and in some parts of the lung the quantity of blood was so great as to render the tissue dense; the more solid parts of the blood appearing to be effused; the degree of congestion varied in different parts of the same lung, but was always greatest where it was most dependent.

In five cases there were distinct evidences of pneumonia, (hepatization?) and in two it had run on to gangrene. Dr. Reid observes that the congested state of the lung is the first departure from a healthy condition, and that the effusion of serum is the consequence of this. He also observes that in fevers he has met with a condition of the lung similar to that which occurs after division of the vagi; this is doubtless the typhoid form of pneumonia, which so frequently occurs in fevers of a low type where the energy of the nervous system is lowered; and the anatomical characters of which, as well as of that variety of the disease which occurs after operations and injuries, closely resemble, if they be not identical with, those described by Dr. Reid, as being found in animals in which he had divided the par vagum.

That this congestion occurs during life, and is not a post-mortem effect, there can be no question, for not only is there found a congested state of the blood-vessels, which might, however, in some cases occur after death, but invariably, even when hepatization has not taken place, is the tissue of the lung altered, being in some instances denser than natural, as if there were an approach to solidification, but that the vital powers were not of sufficient strength to allow of this taking place fully; and in other cases it is softened and friable, breaking down most readily under the pressure of the fingers. In further confirmation that this condition of the lungs occurs during life, I may state that in eighteen of the cases in which it was found, and in which a note of the length of time after death that the antopsy was made has been kept, the average duration of this time was twenty-seven hours and a half; and of thirteen of the cases in which no congestive pneumonia was found, this average time was twenty-seven hours; the difference being so trifling as not to be worthy of notice: the bodies in all the cases being placed under the same circumstances, and in the same position; again it has been found as early as thirteen hours after death, and not met with in bodies seventy hours after that event.

It is very probable that this condition of the lung does not occasionally occur until a very short period, even a few hours before death; in these instances it is the immediate cause of that fatal event, by asphyxiating the patient; and I am persuaded that the greatest number of deaths which occur in surgical practice are directly or indirectly produced by the lungs falling into this state of congestive pneumonia.

By referring to the annexed tables it will be seen that out of forty-one deaths occurring from various injuries and diseases in the surgical wards of

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[*] Edinburgh Medical and Surgical Journal, April, 1839.

Name.	Age.	Date of Admission.	Nature of the Case.	When Autopsy was made.	State of the Lungs.	Date of the Death.
J. W.	...	1837. Feb. 16.	Large indolent ulcer of the leg.	...	Hepatization of the lower lobe of left lung.	12th day
W. H.	38	1838. Sept. 15.	Fracture of the fifth and sixth cervical vertebræ.	...	Pneumonia of the inferior part of the right lung in the 1st and 2d stages.	8th day
W. C.	45	Sept. 24.	Wound of the thumb — Inflammation of the absorbents of the left arm.	20 hours	Pneumonia of the posterior inferior lobes of both lungs in the first and second stages.	4th day
W. R.	37	Oct. 9.	Psoas abscess, with caries of the bodies of lumbar vertebræ.	...	Pneumonia of the inferior posterior part of both lungs in the first stage.	25th day
J. B.	68	1839. Feb. 28.	Strangulated inguinal hernia—left side operation.	...	Pneumonia in the first stage of the upper two-thirds of the right lung, with hepatization of the lower third—Pneumonia in the first stage of the lower third of the left lung.	23d day
C. C.	17	April 11.	Laceration of the scalp — Fracture of skull — Injury of brain.	26½ hours	Pneumonia in the first stage of the lower third of the left lung—Hepatization of the lower two thirds of the right lung.	4th day
J. T.	40	April 10.	Blow on abdomen—Rupture of ilium—Peritonitis.	20 hours	Pneumonia in the first stage of the posterior inferior part of both lungs, but chiefly the right.	5th day
W. P.	67	May 4.	Fracture of the base of the skull—Injury of the brain.	30 hours	Hepatization of the posterior inferior part of both lungs, but chiefly of the right.	4th day
H. G.	30	Sept. 17.	Extensive laceration of the scalp—Comminuted fracture of the left arm.	38 hours	Pneumonia of the inferior part of both lungs in the first and second stages.	26th day
W. O.	20	Dec. 11.	Secondary syphilis—stricture of the urethra.	36 hours	Pneumonia of the inferior part of both lungs in the first stage.	19th day
J. D.	57	1840. Jan. 17.	Fracture of right femur—Apoplexy.	40 hours	Pneumonia of the inferior part of both lungs in the first stage, chiefly the right lung.	5 weeks
J. F.	34	Feb. 1.	Contusion of the right leg — Inflammation of the absorbents.	27 hours	Hepatization of the posterior inferior part of both lungs.	31st day
F. E.	59	Feb. 2.	Fracture of the right patella.	26 hours	Pneumonia of the posterior inferior part of both lungs in the first stage.	5 weeks
J. N.	46	Feb. 17.	Compound fracture of right leg—Amputation.	30 hours	Pneumonia in first stage of the inferior posterior part of both lungs, but chiefly the left.	11th day
L. T.	18	March 3.	Disease of right knee—Amputation.	...	Upper lobes of both lungs tubercular — Lower lobes, pneumonia in first stage.	17th day
R. T.	12	March 10.	Phlegmonous erysipelas of the left arm.	30 hours	Hepatization of posterior inferior part of both lungs — Lobular hepatization of anterior part.	11th day

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* I was permitted, by the kindness of Mr. S. Cooper, Mr. Liston, and Mr. Quain, to make use of the cases contained in the above table.

Name.	Age.	Date of Admission.	Nature of the Case.	When Autopsy was made.	State of the Lungs.	Date of the Death.
S. J.	70	March 29.	Strangulated inguinal hernia, right side—Operation.	24 hours	Pneumonia in the first stage of the posterior inferior part of both lungs.	2d day
T. C.	54	May 1.	Laceration of scalp—Gout, &c.	13 hours	Hepatization of the posterior inferior part of the left lung—Bronchitis.	14th day
T. J.	37	July 25.	Punctured fracture of cranium—Trephining.	17 hours	Pneumonia in the first stage of the posterior inferior part of both lungs.	4th day
W. W.	34	June 13.	Fracture of the body of sixth cervical vertebra.	30 hours	Pneumonia in the first stage of the posterior inferior part of both lungs.	...
S. J.	30	Aug. 14.	Phlebitis of veins of the right arm.	20 hours	Hepatization of the lower lobes of both lungs.	11th day
J. T.	50	Dec. 29.	Abscess of the back.	26 hours	Pneumonia in the first stage of the inferior part of both lungs.	16th day
J. M'G.	67	Dec. 30.	Compound fracture of the left leg..	40 hours	Left lung uniformly congested; emphysematous at some points—Right lung congested and softened, but not to the same degree.	5th day
W. M.	54	1838. Aug. 15.	Contused elbow—Delirium cum tremore—Secondary abscess.	...	General bronchitis.	28th day
S. E.	16	Oct. 3.	Scrofulous disease of ankle—Amputation of leg—Phthisis.	...	Tubercles and Vomicæ in the upper lobes of both lungs.	54th day
J. M.	48	Nov. 24.	Cut-throat.	48 hours	Extensive bronchitis.	3d day
W. R.	2	1839. Feb. 13.	Scald of glottis—Tracheotomy.	29 hours	Bronchitis of larger tubes.	2d day
S. R.	24	Dec. 4.	Œdema glottidis—Tracheotomy.	10 hours	Bronchitis — Emphysema.	14th day
J. C.	40	1840. March 30.	Laceration of liver—Displaced dorsal vertebra.	26 hours	Lungs gorged with fluid blood.	6 hours
W. S.	28	May 9.	Punctured wound of axilla—Severe contusion of the left shoulder — Phlebitis.	15 hours	Œdema of inferior posterior part of both lungs.	3d day
J. G.	51	Dec. 18.	Dislocation of fifth cervical vertebra forwards without fracture.	10 hours	Lungs emphysematous, with small spots of effused blood.	23 hours
F. F.	40	1837. Aug. 1.	Amputation of the thumb—Erysipelas	...	Lungs healthy.	...
C. M.	11	1838. Nov. 17.	Punctured wound of abdomen—Peritonitis.	...	Lungs healthy.	5th day
M. D.	40	...	Fracture of pubes and skull.	30 hours	Lungs healthy.	1st day
G. W.	15	1839. Jan. 21.	Disease of hip-joint.	...	Lungs healthy.	2½ months
S. B.	47	Feb. 2.	Sloughing ulcer of the neck.	29 hours	Lungs healthy.	30th day
J. T.	50	Sept. 20.	Fracture of cranium—Injury of brain.	20 hours	Lungs healthy.	1st day
J. C.	45	Oct. 28.	Laceration of spleen and kidney—Fracture of the ribs.	70 hours	Lungs healthy.	3d day
...	35	Dec. 5.	Fracture of skull—Injury of brain.	22 hours	Lungs healthy.	1st day

University College Hospital (in which an account of the state of the lungs has been kept), these viscera were found in twenty-three cases to be in the first or second stages of pneumonia. Of the remaining eighteen cases, the lungs, with the exception of a few cases in which scattered tubercles were found, were healthy in ten; and of the eight cases in which there was disease of the lung, but no pneumonia, bronchitis was found in four; œdema of the inferior posterior part of both lungs in one; vomicæ from tubercles in another; and of the remaining two, the lungs were emphysematous in one case, and gorged with fluid blood, the patient only living six hours, in the other.

Of the twenty-three instances in which pneumonia was found, that disease had advanced to hepatization in eleven cases; the remaining twelve being in a state of congestive pneumonia in the first stage of the disease.

That the depressing circumstances which attend confinement in a hospital, together with the recumbent position, have some effect in predisposing to this disease, is shewn by the fact, that of the 18 cases in which no pneumonia was found, 11 died before the 3d day after admission, viz. 4 on the 1st day, 2 on the 2d day, and 5 on the 3d day. Of the remaining 7, 1 died on the 5th day, another on the 14th, and 4 at periods varying from one month to two months and a half. Of these last 4, one died of phthisis after amputation of the leg, and two of the others were not confined to a recumbent position until a very short time before death; one, in fact, with sloughing ulcer of the neck, and sloughing ulcer over the trochanter, died in her chair.

On the other hand, of the 23 cases in which pneumonia was found, only 1 died before the 3d day, and that was an old bed-ridden woman, moribund on admission; 4 died on the 4th day, 2 on the 5th day, 6 between the 8th and 14th days, and 9 between the 16th day and 6th week. In all the cases in which the congestive pneumonia was found, the patient was, from the nature of his injury or disease, required to be kept in the recumbent position; and this, no doubt, together with other causes that I have already mentioned, must have disposed him to the occurrence of the disease, by giving rise to congestion of the lungs.

Inflammation of the lungs, occurring in a person already suffering from a severe injury or a capital operation, is of course a complication greatly to be dreaded, and one which, it has been shewn, is much more frequent than is usually believed. It is a complication against which it is necessary to guard as strictly as possible, both on account of it being of a very dangerous nature, and of it assuming very frequently a latent character; that is to say, the rational symptoms are in a great measure, or altogether wanting, and the presence of the disease can only be ascertained with certainty by a carefully conducted physical examination of the chest, which, as it is the posterior part of the lung that is almost constantly affected, it is extremely difficult to institute in the great majority of surgical cases; as it must be obvious to every one that it would be extremely injurious to place a patient suffering from a severe injury, or one who has lately undergone a capital operation, in such a position as would enable us to examine the posterior part of his chest with care. When this can be done, however, we find the same physical signs that occur in typhoid pneumonia, namely, dulness on percussion, with sibilous or bronchial respiration. The crepitation is not so well marked in this as it is in the more active forms of the disease. Sometimes it is entirely absent, and when present it only exists for a short time, and is, as Dr. Hudson observes to be the case in typhoid pneumonia, quickly lost by the accumulation of blood in the surrounding vessels compressing the air cells. As the latency of this disease is usually increased by the low condition of the patient, or by the existence of some severe injury which may chiefly attract the surgeon's attention, it behoves him to watch with the utmost care any appearance, however slight, of the supervention of a chest affection. He must not wait for the marked symptoms of active acute pneumonia to show themselves; but if the respiration be at all hurried and short, if there be any dyspnœa, lividity of the lips, or occasional slight cough, although there be no expectoration, no pain, and little or no pyrexia, he should immediately be on his guard, and, if possible, examine the chest with his ear, to ascertain if there be any of the well-marked and easily recognized signs of pneumonia present; and, if so, have recourse to as active a mode of treatment as the circumstances of the case will warrant.

The knowledge of this tendency in severe injuries and operations to give rise to pneumonia, should always make us cautious in using the knife whilst there is any disposition in the patient to disease of the lungs, and should teach us the necessity, after operating, of guarding most carefully against those circumstances which are, in health even, exciting causes of inflammation of these organs, and which will act with increased vigour on a constitution already lowered by irritation. On this account it would be prudent to defer operations during very severe weather, or during the prevalence of an epidemic pneumonia.

In conclusion, I have but few remarks to make on the treatment of this disease. It is agreed by most writers, that in typhoid pneumonia general blood-letting is quite inadmissible, being not only hazardous, but, as Dr. Williams remarks, useless, as we might empty the great blood-vessels, and stop the action of the heart, before the congestion of the lungs could be relieved, or their vessels enabled to contract. The same observation applies to that form of the disease which occurs in surgical cases, if any thing, with more force, as the patient, before the supervention of the pneumonia, is already very probably weakened by profuse discharge, or, at all events, lowered by the irritation of his injury. Local bleeding must be regulated by the circumstances of each individual case: if the patient be of rather a full habit, and the disease be not of a very low type, cupping, or the application of a few leeches, may be had recourse to over the part affected, followed by the application of a blister. Dry cupping is also useful in some cases where local blood-letting cannot be ventured on. In the constitutional treatment the chief reliance is, I think, to be placed on calomel and opium, followed by the stimulating expectorants, such as decoction of senega, combined with carbonate of ammonia, which no doubt act on the over-distended capillaries of the lungs as local stimuli do in other passive or atonic inflammations. I have seen this plan of treatment of essential service in several cases under Mr. Quain's care, at University College Hospital. The patient's body should, at the same time, be kept warm by means of flannel underclothing; and as this form of pneumonia usually occurs in persons who are weakened by previous disease, and in whom the energy of the nervous system is lowered, the strength must be supported by wine, brandy, or ammonia, and such nourishment as the patient may be able to take.

MUSCÆ VOLITANTES.

To the Editor of the Medical Gazette.

SIR,

As medical journals are intended for the improvement of medical science, I consider that it is the duty of all who are capable, to refute any incorrect statements which appear in such journals. The paper to which I allude appeared in the MEDICAL GAZETTE, p. 719. The author attributed muscæ volitantes to "an opacity of the lachrymal fluid," which fact he says he has "ascertained beyond a possibility of doubt." Now the circumstances forwarded as proof tend to prove that the author is ignorant of what is understood by the term muscæ volitantes; for he says, in proof of the opacity of the lachrymal fluid producing muscæ volitantes, "To be convinced of this, it is only necessary to fix the eyes steadily on some stationary object, and abstain from letting fall the eyelids. Chains of luminous rings, black spots, little brilliant annular specks, and other fantastic forms, fall down in a sort of shower." Independently of such a congregation of strange things not constituting muscæ volitantes, I deny the statement that any such effect is produced when the experiment mentioned is tried, no matter whether the experimenter be a subject of muscæ volitantes or not; although the author would wish to make us believe that the effect will be produced in any one, if the trial is made; for he says, "The conviction produced by this simple experiment is at once so complete, and so instantaneous, that I never yet met with a man who required a single word to be added to confirm his belief." That opacities of the cornea, morbid growths, or changes of structure of the conjunctiva, or foreign bodies immediately opposite the pupil produce effects different from muscæ volitantes, is known to every surgeon who has seen any ophthalmic practice; yet the author says, "Now naturally different degrees of opacity and adhesiveness (?) may give the form of black spots, annular specks of light, (single or in chains), the phenomena are easily explained." The author betrays his ignorance again, when he states that "in the immense majority of cases the disease is not connected with constitutional or general disturbance." The cure mentioned is too rich to be forgotten, since the disease "may be removed by a collyrium of sea water, or the application of a blister, not larger than a sixpence, near the lachrymal gland, and a collyrium composed of one grain of sulphate of quinine to three ounces of distilled water, with just sufficient excess of sulphuric acid to keep the fluid transparent."—I am, sir,

Your obedient servant,

M. R. C. S.

Feb. 8, 1841.

MEDICAL GAZETTE.

Friday, February 19, 1841.

"Licet omnibus, licet etiam mihi, dignitatem *Artis Medicæ* tueri; potestas modo veniendi in publicum sit, dicendi periculum non recuso."

CICERO.

SIR ASTLEY COOPER.

We have lost one of the master spirits of the age!—Ere this meets the eyes of our readers, there will probably be none among them unaware of the event to which we allude: yet it is a mark of respect due to the deceased that we should add one more to the list of those who have recorded, as calculated to excite general interest and regret—the death of SIR ASTLEY PASTON COOPER.

Sir Astley Cooper was born August 23d, 1768, at Brooke, in Norfolk, and died at his house in London, Feb. 12, 1841, being in his seventy-third year. He was the son of a clergyman in the church of England—Dr. Samuel Cooper, of Yarmouth, who married Miss Bransby, of Shottisham, a lady of talent, herself an authoress, and connected with the family of Paston,—a circumstance which led to this name also being given to Sir Astley.

It has often been remarked that some circumstance, apparently accidental, has tended to influence the future career of those concerned; and an anecdote is told of Sir Astley which, if true, seems to bear out this idea. It is said that when a boy he saw a lad fall from a cart, and tear his thigh in such a manner as to wound the femoral artery; our young hero immediately took his handkerchief, applied it round the thigh, and twisted it so tightly as to control the bleeding till further assistance could be procured.

At the age of fourteen he was removed to Yarmouth, where he was soon after apprenticed to Mr. Turner, a general practitioner in that town. In this situation, however, he remained but a very short time ere he proceeded to London, to be under the care of his uncle, Mr. W. Cooper, one of the surgeons of Guy's Hospital, by whom, however, he was in a few months transferred, at his own request, to Mr. Cline, then in the height of his reputation at St. Thomas's. On the completion of the ordinary course of study, and while yet in his apprenticeship, he became demonstrator of anatomy to his distinguished master; and in 1791 he began to lecture on surgery, giving the first regular course on that subject ever delivered in London; as, anterior to this time, what surgery was given constituted but a collateral branch of the anatomical course.

In 1787 he spent the winter in attendance on the medical classes in Edinburgh; and in 1792 he went to Paris, having previously married Miss Cock, a connection of Mr. Cline, by whom he had one daughter—his only child, who died in her second year.

During his residence in the French capital he attended chiefly to the lectures and practice of Desault, at that time the most distinguished surgeon in France, and of whose instructions he entertained a very high opinion. Here Sir Astley was present during some of the horrors of the revolution, and among other things was a witness of the celebrated attack upon the Tuilleries, and the massacre of the Swiss Guards, on 10th of August, 1792.

On his return from Paris, Sir Astley permanently settled in practice. In 1800 he became surgeon to Guy's Hospital—an appointment which he retained till 1826, when he was created consulting surgeon.

Sir Astley's first house was in Jeffrey's Square, St. Mary Axe—not a very fashionable part of the town certainly, but where he was content to sojourn not less than six years. He then removed to New Broad Street, where he remained for seventeen years in very extensive practice, and in daily increasing reputation. His income was certainly at one time greater than that of any other medical man of the present day, having, we believe, on more occasions than one, exceeded £20,000 within a year. He also received some very large fees, among which not the least remarkable was that of a thousand guineas thrown at him in his night-cap by a patient whom he had cut for the stone — an anecdote which we heard the deceased tell with no small animation, on retiring from a patient upon whom he had just performed the same operation, and who had likewise in his agony flung his cap at the surgeon, but without its containing on this occasion the cheque which gave so much force to the original incident.

In 1815, when at the height of his reputation, he removed to Spring Gardens; and he was one of the few with whom the migration from the city to the west end has proved fully successful. A few years afterwards he was employed professionally by George IV. to remove a small tumor from the scalp — an operation which he performed with all his wonted coolness and dexterity.*

Soon after this (in 1821) he was created a baronet, the patent extending to his nephew and name-sake, Astley Paston Cooper, fourth son of his brother—the present holder of the title. From this time till 1827 he continued to enjoy an extensive practice, and to make a very large income. He then, in the full zenith of his fame, voluntarily retired into the country to enjoy the riches he had accumulated, and spend the remainder of his days in the dignified repose of a country gentleman. But Sir Astley was not made for the *otium cum dignitate*, and a very short time saw him back again in the metropolis, where, on more than one occasion, he publicly referred to the period of his seclusion, and declared that if he had remained idle he should certainly have hanged himself. His nephew, Mr. Bransby Cooper, having been installed in his old residence in New Street, Spring Gardens, Sir Astley took a house in Conduit Street, where he gave a series of *conversazioni*, which were attended by nearly all the medical world in London, and which were intended apparently to convince his brethren of the reality of his return. He brought with him his great name and unblemished reputation, but never had, and probably never desired to have, the same immense business as before his temporary retirement; others, of scarcely inferior note, had gained possession of, and retained a considerable portion, of what had before been almost exclusively his own.

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* There is no truth whatever in the story which appeared in the newspapers some days ago, in which it is stated that Sir Astley lost his presence of mind on this occasion, and was recalled to himself by an admonition from Lord Liverpool: his Lordship was not even present.—Ed. Gaz.

His first wife having died in 1827, he married Miss Jones, of Cardiganshire, the following year, and from this time used to reside some portion of each season on his estate in the country. He also visited Paris more than once, and received marked attention from M. Dupuytren.

We have already mentioned that Sir Astley began to lecture on surgery at an early age (in 1791), and he continued to do so till 1826. We attended his course somewhat more than twenty years ago, and our recollections vividly remind us of one who carried conviction to those who heard him, that he was a master of his art. He was not particularly studious of elegance, but his language was always fluent and clear; his ideas were precise, and his meaning never doubtful; the more important points of his subject always had their due prominence, and were deeply impressed on his hearers.

As an operator we need scarcely say that he was bold, rapid, and skilful, almost without parallel, — qualities which tended greatly to enhance his own reputation, and to heighten the character of English surgery. We well remember having been present at a conversazione at M. Maunoir's in 1817, attended by most of the scientific men in Geneva, when the fact was communicated of Sir Astley having cut down upon and tied the aorta in the living subject; nor shall we readily forget the expressions of admiration, not quite unmingled with consternation, with which the announcement was received.

Probably no surgeon of ancient or modern times has enjoyed a greater share of reputation during his life than has fallen to the lot of Sir Astley. The old and new world has alike rung with his fame; and, perhaps, we cannot give a better example of this than one to which we remember having alluded on a former occasion—we mean, the fact of his signature being received as a passport among the mountains of Biscay, by the wild followers of Don Carlos. A young English surgeon, seeking for employment, was carried as a prisoner before Zumalacarregui, who demanded what testimonials he had of his calling or his qualifications? Our countryman presented his diploma of the College of Surgeons; and the name of Astley Paston Cooper, which was attached to it, no sooner struck the eye of the Carlist leader, than he at once received his prisoner with friendship, and appointed him a surgeon in his army.

Sir Astley had, for years, been subject to occasional attacks of giddiness, which he was naturally anxious to conceal, but which sometimes proceeded so far as to compel him to desist from whatever he was employed about; and, on one occasion, he even fell in the street. During the latter part of his life he also suffered a good deal from occasional fits of the gout, which, however, did not present any thing remarkable. For some time his countenance exhibited a purplish tinge, as from some embarrassment in the circulation; and, latterly, he had been heard to protest, that he must decline visiting patients who were up two pairs of stairs—a threat which, though meant as a joke, had evidently originated in the exertion distressing him. Indeed, we understand that he had repeatedly expressed his belief that there was "something wrong," and that he had not long to live.

The last and fatal attack, however, was of recent date, and in it he had the assistance of Dr. Chambers and Dr. Bright. The body was examined after death, when the diagnosis previously given was confirmed, by the heart being found to be enlarged, with some atheromatous deposits in the aorta, and effusion into the pericardium and cavities of the pleura.

The Chapel of Guy's Hospital has been appropriately chosen as the place of his interment, which is to take place to-morrow (Saturday) at three o'clock.

Sir Astley Cooper was a handsome man, and of striking appearance, well deserving the "c'est un bel homme!" which was often bestowed upon him as he walked round the Hôtel-Dieu with M. Dupuytren. His manner was open, free, and encouraging to his patients; altogether void of affectation, as well as of all excessive or artificial polish.

Throughout his whole career nothing could exceed the uniform fairness of his conduct towards all his brethren, or his kindness towards the younger members of the profession, especially those whom he saw to be possessed of merit. There are few among us who do not feel personally grateful to him for his conduct on some occasion.

Sir Astley, as we have seen, long enjoyed a large share of public patronage; but we believe the actual amount of his fortune, when stated at half a million, is considerably over-rated. His personal expenses were not great; but he was very liberal to his relations, on whom, we have heard, on what we believe to be good authority, that he bestowed between two and three thousand pounds annually. He is also said to have spent £20,000 in bringing his brother into Parliament*. Nor was his liberality confined to his own family:—when Dr. Baillie and some others made up a purse for Dr. Pemberton, in the difficulties brought upon him by his ill health, Sir Astley contributed the munificent sum of £500.

Besides his Baronetage, Sir Astley had numerous honours conferred upon him: he was Serjeant-Surgeon to three successive monarchs—George IV., William IV., and her present Majesty. He received the Grand Cross of the Guelphic Order from his own Sovereign, and the cross of the Legion of Honour from Louis-Philippe. He was an honorary member of the French Institut, Doctor of Civil Law in the University of Oxford, and twice President of the College of Surgeons.

The leisure of his advanced age was not spent in idleness, but was devoted to scientific pursuits; — dissecting, making preparations, and other most industrious investigations of disease. We subjoin a list of his principal contributions to science — more honourable than all the dignities which have been bestowed upon him, and which will constitute the most enduring monument of his fame*.

LIST OF SIR A. COOPER'S WORKS AND PAPERS.

We believe that Sir Astley Cooper's first contributions to science are to be found in the *Medical Researches*, published in 1798. We therein find two papers,—

1. "The dissection of a case of hernia through the diaphragm, which proved fatal;" and

2. "Account of three cases of obstruction of the thoracic duct."

We next find him appearing in the *Philosophical Transactions* for 1800, to which he contributed

3. "Observations on the effects which take place from the destruction of the membrana tympani of the ear:" and in the same work for 1801, connected with the former paper, we have

4. "Account of an operation for the removal of a particular kind of deafness." For these he obtained the Copley medal.

5. In 1804 appeared "The anatomy and surgical treatment of inguinal and congenital hernia:" and in 1807

6. "The anatomy and surgical treatment of crural and umbilical hernia," which, thus completed, may be regarded

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* It is amusing to see Sir Astley's success attributed, in a memoir recently published, to his brother being in Parliament—just the converse being the fact, viz. that his previous success enabled him to make his brother an M.P.

* In our last leader, for "crediti posteri," read "credite;" and for "a practice *what* has crept in," read, "a practice *that* has crept in."

as his great work, and that which first stamped his reputation with the strong impress which it ever after retained. As a treatise on the subject, it is still, and, perhaps, may always remain, unrivalled.

His next contributions appeared in the *Transactions of the Medico-Chirurgical Society*, the 1st volume of which contains

7. "Two cases of ligature of the carotid artery," being the first recorded cases of that operation; and the 2d volume has

8. "The dissection of a limb on which the operation for popliteal aneurism had been performed;" and also

9. "Some observations on spina bifida."

The 6th volume gives us

10. "The History of a case of premature puberty," and

11. "An Account of the anastomosis of the arteries of the groin," and the 8th

12. "Three cases of calculi removed from the bladder without the use of cutting instruments." In the 11th volume we have

13. "An Account of a case in which numerous calculi were extracted from the urinary bladder of the male without employing cutting instruments;" in the 12th volume is

14. "The History of an operation in which a fatty tumor, weighing above 37lbs., was removed from the parietes of the abdomen;" and in the second part of the same volume is a

15. "Further account of the extraction of calculi from the bladder."

16. The next work we have to notice is the one containing surgical essays, by Sir Astley and Mr. Travers, in which the papers by the former are on Dislocations, on Exostosis, on Unnatural Apertures in the Urethra, on Encysted Tumors; and though last, not least, the case in which Sir Astley tied the Abdominal Aorta.

17. In 1822, the "Essays on Fracture and Dislocation" appeared as a distinct work, with numerous engravings; and, in 1823, an appendix was added, in reference to fractures of the neck of the femur. This is excellent as a contribution to science, while, as a text-book for students, it is invaluable.

18. The "Illustrations of the Diseases of the Breast" appeared in a quarto volume in 1829; and, in 1830, those

19. "On the Structure and Diseases of the Testis," in the same form, and also illustrated by expensive engravings.

20. Again, in 1832, we were presented with "The Anatomy of the Thymus Gland;" and, in 1839, we have Sir Astley again,

21. "On the Anatomy of the Breast," constituting the last of his great works.

In the interval between the two volumes last mentioned, several papers were published in the *Guy's Hospital Reports*, besides some observations appended to the papers of others. Among his papers, given to the public through this channel, are two very interesting dissections, viz. "A Case of Femoral Aneurism, for which the external Iliac Artery was tied; with an Account of the Preparation of the Limb, dissected at the expiration of thirteen years;" and an "Account of the First Successful Operation performed on the common Carotid Artery in 1808; with the post-mortem examination in 1821." Again, we have "Some Experiments and Observations on tying the Carotid and Vertebral Arteries, and the Pneumo-gastric, Phrenic, and Sympathetic Nerves;" again, we find a paper "On Spermatocele, or Varicocele of the Spermatic Cord:" once more we have a paper "On Dislocation of the Os Humeri upon the Dorsum Scapulæ, and upon Fractures near the Shoulder-Joint;" and lastly we have the "Dissection of a supposed Hermaphrodite." This is contained in the "Reports" for October, 1840; and is, we believe, the last of Sir Astley Cooper's numerous contributions to surgery.

We fear that Sir Astley's death has interrupted the completion of other works in which he was engaged. The second part of the "Illustrations of the Diseases of the Breast," which was to treat of malignant affections, was promised some time ago, but has not yet appeared. We hope that the materials which he collected for it will still be given to the public.

COLLEGE OF SURGEONS.

HUNTERIAN ORATION.

The Hunterian Oration was delivered by Mr. Callaway, on Tuesday, before a crowded audience. The most remarkable point in it was the just and well-timed eulogy which he bestowed on Sir Astley Cooper.

ROYAL MEDICAL AND CHIRURGICAL SOCIETY.

Tuesday, Feb. 9, 1841,

SIR B. C. BRODIE, BART. IN THE CHAIR.

History of a Remarkable Case of Phlebitis; with Observations. By THOMAS HOOKHAM SILVESTER, M.D. Member of the College of Physicians, and Physician to the South London Dispensary.

MUCH difference of opinion exists in regard to the treatment of phlebitis, and much remains to be known respecting its cause, nature, and consequences. All are agreed as to its danger. It is the object of the author of the paper to describe the disease, its phenomena during life, and the pathological appearances after death. as they occurred in an isolated case. The patient, about sixty years of age, the subject of piles and large varicose veins in both extremities, received a slight wound, probably from his razor, in the upper lip, which was followed by enormous swelling of the part, but not much constitutional disturbance. At the end of fourteen days the disease seemed to have finished its course, and the patient to be recovering. It quickly, however, reappeared in the veins on each side of the nose, and progressively extended through the numerous ramifications of the frontal and temporal vessels, which, on opening with a lancet, poured forth in abundance "laudable" pus. Incrustations something like the scabs of rupia appeared along the track of each vessel, and when these were removed the interior of the vein became exposed, and the healing process went on by granulation. The symptoms of the disease were, from the commencement to the termination, of a very mild character. The patient appeared to sink under exhaustion at the end of the ninth week, at a moment when pus existed only in a few of the vessels about the vertex; the process of reparation having been completed in the lip, sides of the nose, and forehead. The autopsy discovered pus in the trunks, and a fibrinous crumbling substance in the ramifications of part of the venous system of the scalp. The minuter branches contained a little fluid blood, of which, however, there was a very small quantity in the whole body. No pus globules could be traced by the microscope. Deposits of pus were sought for in the several large organs and in the muscles, but fruitlessly.

Dr. James Johnson said it would be highly interesting to hear the opinions of the many able surgeons then present, respecting the mode of treatment best to be adopted in the early stages of phlebitis; whether, he particularly meant, the antiphlogistic or the tonic plan of treatment should be followed.

The President said the question was one to which it was impossible to give a definite answer. Phlebitis occurred under such a variety of different circumstances, and put on so many different characters, that it was impossible to lay down any general rule of treatment. The cases of phlebitis, for example, which were attended with great enlargement of the leg, and passed by the name of phlegmasia dolens, were almost always quite chronic in their course, and required no active treatment at all. Other cases, on the contrary, were most rapid and acute: he had known them terminate fatally in three or four days from the commencement of the symptoms; and one case he had seen had proved fatal in only forty-eight hours. He could give no general statement for the ordinary cases of phlebitis, but, as far as his experience went, he should say that general bleeding was rarely useful: the condition of the patient was more commonly such as to require support.

Mr. Skey said, that his experience led him to regard the antiphlogistic treatment of phlebitis as very rarely beneficial, and often injurious. In the practice at St. Bartholomew's Hospital he had had opportunities of observing how very frequently the disease supervened in those who were of a weak debilitated state of system, and more especially in those who had suffered from great loss of blood. He remembered in particular one case, of a man, who was bled there to 120 ounces in the course of an hour, for the reduction of a dislocation of the hip; about 25 grs. of tartar emetic were given to the man in the same time: and at the time he (Mr. S.) expressed his conviction to a friend standing by, that the patient would die of phlebitis. He anticipated this partly from the quantity of blood lost, and partly from the more than ordinary violence which it was necessary to employ, in order to obtain so considerable a quantity of blood from the arm. The hip was happily reduced, and the man was put to bed apparently well; but phlebitis came on, as he had anticipated, and the man died. He remembered another case very similar to this, in which, however, the quantity of blood abstracted was less, and no unusual injury was inflicted on the vein; but in this also phlebitis ensued, and ended fatally. From these cases, and from the general results of his experience, he believed that bleeding should not be employed in cases of phlebitis.

Mr. Dalrymple related a case in some measure confirmatory of the same view, which was still partially under his care. It was that of a medical student, who had reduced himself to a state of great weakness by the abstinence and energy with which he pursued his studies: eating meat only three times a week, that it might not prevent his application, and sitting up reading till two or three o'clock in the morning. In the condition which these habits, united with an originally very irritable constitution, brought on, he received a slight injury: he had scratched and irritated a slight eczematous eruption in his leg, and it was followed by swelling in the groin, and phlebitis of the veins of the leg and thigh. He was, under the care of a physician, treated by severe antiphlogistic measures: his diet was reduced to the lowest quantity, and leeches repeatedly applied, and reducing measures were administered. By these means he was soon brought to the lowest possible stage of debility; and at length, from the typhoid state which came on, it was found absolutely necessary to administer cordials, and to support him. A deep abscess now formed on the inner side of the thigh, which was opened, the incision being extended through the fascia, and a quantity of matter discharged: he now seemed going on well, but some days afterwards hæmorrhage to a considerable extent took place from the opening into the abscess. The signs of phlebitis now again returned, and fresh abscesses formed in the course of the veins of the leg. The hæmorrhage was removed at several times, but was checked by pressure; on one day, however, he suddenly lost nearly a quart of blood in a very short time. Mr. Liston and Mr. Travers being then called in, it was determined to tie the femoral artery; and this being done, the hæmorrhage did not again return, and the patient again began to rally and to make progress. He went on well till one day he exerted himself too much, and moved his leg about, when again phlebitis came on, and only a few days ago a large abscess in the thigh had burst. Now, however, he seemed in so much more favourable a state, that recovery might fairly be anticipated. The whole course of the disease, however, in this case seemed to indicate clearly that reducing measures were injurious; and he could not but think that had the treatment been from the commencement more calculated to support the strength of the patient, the result would have been much more satisfactory.

Mr. Arnott said he could not agree in the condemnation of antiphlogistic measures, and especially of the abstraction of blood, for he held that, in a certain form, that measure was the most advantageous that could be employed; and indeed, in his opinion, the only one of real benefit. Much had been said of the tendency of phlebitis to occur in the debilitated and reduced, and especially in those who had suffered from large losses of blood. Such cases, no doubt, did occur; but they did not constitute the majority of cases. He conceived that it must be familiar to the members that, after amputation, phlebitis is much more common in the cases in which the operation is performed directly after an accident in robust and previously healthy persons, than in those who had been previously exhausted by long-continued scrofulous or other disease. He had seen numerous proofs of this, but he would mention only one: a lad, 15 years old, was brought to the hospital, having had his leg crushed by a railway-engine: within three hours of the accident he amputated the thigh, and found the femoral vein already blocked up by coagulum. He expressed at once his assurance that the boy would have phlebitis; and he had, and died. The vein had, no doubt, received a severe injury by the accident, and inflammation had at once commenced in it. Now it was contrary to all that had ever been taught, and to what daily experience constantly confirmed, to imagine that cases of this kind should be benefited by any thing but antiphlogistic treatment: but he would make a distinction as to the kind of bleeding to be employed. He did not believe that bleeding from the arm was generally useful: the plan to be followed was to apply leeches again and again over the inflamed veins: to keep the blood constantly flowing from around them. And with this mode of treatment the administration of nourishment was not, in cases where it was deemed necessary, at all incompatible: the two measures might be employed together without any impropriety.

With respect to the case now before the Society, he regretted the author was not present, that he might have asked for explanation of several points connected with it. He confessed that he had doubts whether it were a case of phlebitis at all; it had rather the characters of inflammation of the lymphatics; and he should like to know whether any of the collections of pus had been fairly traced to have connection with the veins of the scalp.

Dr. Williams said he was present at a part of the examination of the body, and he could state certainly that the deposits of lymph and pus were traced into the veins. The question raised to-night with reference to the connection between a reduced state of the system and inflammation of the veins, was one of great interest. He was not aware that in medicine there was any class of cases comparable with these which fell under the care of the surgeon; unless, indeed, it were those of dropsy from diseased kidneys with albuminous urine. In these, in which it was well known that the blood becomes greatly impoverished, he had of late noticed a remarkable tendency to the occurrence of disease of the arteries and their valves. In the last six cases observed at St. Thomas's, this had been the case; it seemed certain that before the dropsy occurred, and keeping pace with the impoverishing of the blood, extensive disease had been going on in the large arteries and the aortic valves. The author had alluded to his having regarded this case, in the first instance, as one of ordinary erysipelas: he (Dr. W.) thought the connection of the two diseases a subject well worthy of inquiry. He believed that it was held by M. Velpeau that phlebitis is very frequently coincident with erysipelas.

The President said there was no doubt of the fact; he had often examined cases of erysipelas, in which, with sloughing of the subcutaneous cellular tissue, the veins were highly inflamed. With reference to the occurrence of phlebitis in persons in previously good health, there could be no doubt that it was a common occurrence. When he was a student at St. George's Hospital, it was the custom to tie the vena saphena for varicose veins of the legs, and cases of phlebitis were then very common. The operation was discontinued partly because it did no good; for the patients used to come back three or four months afterwards with their legs as bad as ever; and he believed that all the good it did for the short time was only owing to their having been kept in bed. But the chief reason for giving it up was, that many of the patients had severe phlebitis after the operation, and died. Now these were all people in previously perfectly good general health. In many of these he remembered blood-letting was employed to a considerable extent, and it seemed to produce benefit in some instances. He had himself, when assistant-surgeon, at the suggestion of Mr. Abernethy, divided the saphena vein in a healthy man for a varicose state of the veins of the leg. In this case phlebitis of great severity came on, and the man was largely bled, and recovered.

Mr. Arnott said he had also had several occasions of examining cases of erysipelas, in which he had found both the veins and the lymphatics of the part highly inflamed and filled with pus. The case related by Dr. Sylvester, he must still remark, differed widely from ordinary cases of phlebitis. In the first place, its origin was different; it was not usual for phlebitis to be produced by the irritation of a pimple, or to commence with a slight local inflammation: but this was very commonly the case with inflammation of the lymphatics. In the second place, the course of the disease was different; phlebitis almost always proceeded along the large trunks of the veins; this had gone through a number of branches: and, lastly, the character of the matter discharged was different; it was described as pure laudable pus; but that of phlebitis was ordinarily, not perhaps always, but still generally, of a reddish colour, and sanious.

Dr. Ashwell said he thought that in relation to the question of bleeding, a distinction ought to be made between cases that occur from any accidental injury, or from any other traumatic cause, and those that come on as if spontaneously. In the former class he had no doubt blood-letting was highly beneficial; but, in other cases, in those, for example, which occurred after a severe labour, he had never seen it of any value.

Mr. Macilwain said it appeared to him that there was a certain character of constitution common to all cases of phlebitis, with which it was necessary to be acquainted before it could be determined what treatment was adapted to it. It was difficult, perhaps impossible, to define exactly what this character was; but, as far as he had observed, it was always marked by a want of power. He should, therefore, not be inclined to adopt active antiphlogistic measures; and he almost regretted that Mr. Arnott should have given the weight of his authority to the almost unlimited employment of local bleeding. He did not regard leeches as very formidable things; but he doubted whether such a profuse employment of them could be beneficial. In children especially he had seen them productive of great injury when so extensively applied.

Mr. Rutherford Alcock said his experience, which had been rather considerable in cases of phlebitis after injuries and amputations, had led him to the conclusion that there could be no general rule laid down for the employment or non-employment of bleeding. There were some cases in which the disease assumed all the characters of an acute and active inflammation, with a full and hard pulse, and high inflammatory fever. In all these he had freely employed bleeding with the most satisfactory results. But there were other cases in which the affection from its very commencement assumed a typhoid character; and in these, of course, no bleeding could be employed. He should think its use nothing less than manslaughter. The patient must in these cases be supported by all possible means. He did not think with Mr. Macilwain that there was any common character in those affected with phlebitis; and if there were, and it could not be defined, he did not know how it could be made subservient to the treatment of the disease. Besides the extreme cases he had mentioned, there were others in which the affection assumed a mixed character; the fever was neither typhoid nor acutely inflammatory, but something between the two. In these he was inclined to think the plan recommended by Mr. Arnott, of copious local bleeding, to be the most beneficial that could be adopted.

Dr. Elliotson said it was plain that in phlebitis, as in most other diseases, there were some cases that must be treated in one way, and others that required just the opposite management. His own experience included only those cases in which the disease had occurred in the course of some medical disorder for which he was in attendance on the patient; as a kind of accident, therefore, to some other disease. In all these he had certainly found the best treatment to be that of supporting the patient; and by this he meant, not that which was commonly confounded with it, the administration of stimulants, brandy, wine, and so on, but the giving of good nutritious food, such as strong beef-tea, eggs, and other things of that class.

Mr. Macilwain would make but one observation in reply to Mr. Alcock. It was said it would be of no use in treatment to know what was the peculiar general condition on which these diseases depended. The subject was too long to be entered on now, and he had given to the world his opinions as to what these general conditions were; but he would give now one example of their application. It was probably generally known and agreed upon what iritis is; that it is an acute inflammation: now when, in cases of iritis, could it be said,—this case depends on suppressed secretion, or other disorder, of the skin, or the kidneys, or some other organ, and when that secretion is restored the iritis will disappear, without either bleeding or any other part of the ordinary treatment; and if these prophecies were repeatedly fulfilled, he thought it was something to learn the real condition of the system on which these diseases depended. Numerous cases of the kind were constantly occurring to him, and he had long invited the attention of the profession to them, in which, by determining what organ was out of order, and by remedying its condition, these local inflammations disappeared as certainly and as speedily as they ever did under the ordinary treatment by bleeding, mercury, and other remedies of that class.

An Account of Two Cases of Imperforate Hymen. By Sir B. C. Brodie, Bart. F.R.S. &c. &c.

The author was induced to give to the Society the narrative of the cases in question, not so much in consequence of any thing unusual in the cases themselves, as from a wish to awaken attention to the difference between these instances of true imperforation of the hymen and such as are usually described as belonging to the same category, but which are in reality nothing more than cases of congenital closure of the vagina, or accidental adhesion of the walls of that canal.

The President hoped some information on the subject would be afforded by the numerous gentlemen of more experience in these matters than himself, whom he saw around him.

Dr. Merriman said he had seen two cases of imperforate hymen. The first was in a girl fifteen years old, who was under his care with the late Mr. Chevallier. The case was at first supposed to be one of closure of the vagina, but on a careful examination there was no doubt that the closure was produced by the hymen. At his request Mr. Chevallier operated on the patient, making a crucial incision through the hymen, and the patient ultimately did well. She, however, exhibited a result of the operation which had occurred in a case mentioned by Dr. Denman, who particularly alludes to the danger of its occurrence after these operations; she had acute peritonitis, and required all the active treatment for that disease. The other case he (Dr. M.) had seen, was with Sir Charles Bell; it was that of a married woman, who had never menstruated; but who, after marriage, finding an enlargement of the abdomen, thought herself pregnant. On examination, both he and Sir Charles had no doubt that the hymen was imperforate; the latter operated, and a very large quantity of menstrual fluid was discharged. The woman did well, and had since been pregnant, and bore a living child in a perfectly satisfactory manner. It was remarkable that in this case, though she had been married nearly two years, neither the woman nor her husband had any idea of any unnatural formation existing. Another case, somewhat similar to the second mentioned in the paper, had occurred to him, in which the aperture in the hymen was so small as to admit only a small probe; this he had treated with perfect success by introducing a bougie daily, and gradually increasing the size till he had made the aperture of its ordinary size.

Dr. Moore said he knew of some cases of imperforate hymen similar to those related, and he related a remarkable case that had been communicated to him by Dr. Munk. A girl, who had never menstruated, was treated for amenorrhœa; at length a swelling formed in her abdomen, and gradually became so large that she could only walk in a very constrained stooping posture. One day she felt something give way in her abdomen; and in two or three days after died with acute peritonitis. On the examination the abdomen was found to contain a large quantity of chocolate-coloured fluid, like menstrual discharge, which had proceeded from a rent in the right fallopian tube. The uterus was very much distended and soft; and contained a quantity of similar fluid. About two inches from the orifice of the vagina it was completely closed.

Dr. Ashwell said he was not prepared to have heard of the imperforate state of the hymen being so rare an occurrence. He could call to mind four cases in which he had observed it. He could confirm what Dr. Merriman had stated respecting the occurrence of peritonitis after these operations, and could add that it was more likely to occur after operation for closed vagina than after that for imperforate hymen. He mentioned also the difficulty that commonly exists in keeping open the apertures made through the vagina in the operation to cure its closure from disease; and detailed one case in which, after a second operation for the purpose, fatal peritonitis ensued.

The President said he supposed such cases were more common than he had been led to imagine, from the statement of Dr. Blundell and Sir Charles Clark that they had neither of them met with a case of the kind. He had seen, if he remembered rightly, four cases of closure of the vagina, which are commonly described as imperforate hymen. One of these was an out-patient of St. George's Hospital; she was operated on, but she would not come into the hospital, and at her own home she very narrowly escaped death from peritonitis. Another was also in the hospital; and soon after the vagina had been punctured symptoms of acute peritonitis came on, and she died. On examination, the abdomen was found to contain a large quantity of menstrual fluid; but there was no rupture of the uterus or fallopian tubes, and it was impossible to explain the presence of the fluid in the abdomen except by supposing that it had passed from the uterus backwards through the fallopian tube.

Dr. Elliotson related a case of imperforate hymen, that was in St. Thomas's Hospital; and another in which a woman, who had no trace whatever of vagina, had been married for some time without either her husband or herself having any idea that she was ill-formed. She had been under his care for amenorrhœa before marriage; and after marrying she came to him again, saying that she had still not been ever unwell. On examination, no appearance of vagina could be found. Mr. Henry Cline, who saw the patient with him, made, at his request, an incision in the direction of the vagina, but without finding any cavity. The operation was performed a second time, the incision being carried as deep as it could be with safety, but still no vagina could be found; and it seemed therefore probable that none whatever existed.

APPRENTICESHIP SYSTEM.

To the Editor of the Medical Gazette.

Sir,

The very able article on the apprenticeship system, in your number for January 29, and a letter on the means of improving the finances of the College of Physicians, &c., would probably convince any reasonable reader of the necessity of a medical reform. The profession, however, whilst they are almost unanimous as to its necessity, feel strong doubts of deriving any benefit from such bills as those proposed by Messrs. Warburton and Hawes. Mr. Wakley's has not yet appeared, and some wags say never will; they suspect that the Lancet would feel a sad falling off in its circulation, should it do away with the feverish excitement of hundreds of discontented members and students of the profession, who week after week purchase the said publication, solely in hopes of seeing its editor's promised bill, and the laws which are to regulate a new college.

With the great number of licensing bodies we at present possess, and the different titles and privileges they confer, it might be supposed that all the good desired could be obtained by conferring additional powers, or, if necessary, compelling one of the existing institutions to enlarge its sphere of usefulness, and oblige all persons in future to obtain its license previous to practising medicine in any way, or under any title—say, for instance, the College of Physicians. Let it require of candidates a certificate from a medical practitioner of having studied and practised pharmacy under his direction for the period of two years; then of having attended lectures, dissections, and hospital practice, for three years, on all the branches at present required by the Apothecaries' Company, and College of Surgeons; after this let him be examined, and if he prove competent, grant him his license to practise medicine, surgery, and midwifery; and further, to dispense his own prescriptions, and supply medicines, and all medical appliances (ordered by himself) to his patients. Call this person a licentiate of medicine and surgery, and let his license give him power of presenting himself ten years after he obtained it, or at any period after that, for another examination, conferring on him the title of doctor, and retaining the same privileges as formerly. Thus there would be two grades in the profession, which I do not view with horror, especially as, according to the above, it would only be the junior licentiate and senior doctor: neither should keep an open shop, or sell drugs he did not himself prescribe, whilst the chemist or druggist should be a tradesman only, not even prescribing in his own shop: the latter might be made effectual by empowering any magistrate to inflict a penalty of £5 on the offender, half of which should go to the informer.

Some medical men are of opinion, with Shakspeare, that there is nothing in a name. I think differently, and would hope some day to possess a more intelligible title, the inconvenience of which I felt last summer as follows:—Being on a diligence from Paris to Calais, I got into conversation with a Frenchman, who asked me my profession. I told him I was a "Praticien General;" immediately after which I saw him adjusting his coat pockets safely under his nates; he dropped all conversation, and, as I suppose, took me for a practising member of the swell mob, which idea my ambiguous title might well suggest: in fact, nothing can puzzle a foreigner more than our medical institutions.

If you think the above, or any part of it, worth publishing, by giving it insertion you would greatly oblige,

Your obedient servant.
Argus.

Feb. 13th, 1841.

CLAUSES PROPOSED TO BE INSERTED IN THE POOR LAW CONTINUANCE BILL.

To the Editor of the Medical Gazette.

Sir,

I beg you will do the question of Poor Law Medical Relief the justice to correct the announcement at the close of your last number, headed "Reform Deputations."

The conference with Lord John Russell had nothing at all to do with "Medical Reform." The gentlemen whose names you mentioned, and Mr. Ceeley on the part of the Provincial Association, waited on his Lordship to request him to introduce certain provisions for regulating Medical Relief, into the Bill now passing through Parliament for the continuance of the Poor Law Commission.

Lord John replied, that until he saw the precise measure on which the profession had decided, and had consulted the Poor Law Commissioners, he could give no positive answer, but that if a clear and intelligible set of propositions were submitted to him, he would inform the deputation of his intentions regarding them.

Accordingly, on Monday and Tuesday last, Mr. Ceely and myself, as delegates from the Provincial Medical Association, conferred with Dr. Webster and Mr. Farr, as representing the British Medical Association, and agreed on recommending the series of clauses which I now inclose; and which I solicit you to publish in the next Gazette.

Mr. Sergeant Talfourd and Mr. Wakley have concurred in forwarding these clauses to Lord John Russell, who it is believed will refuse a "Medical Director;" and since the consent of the crown is necessary before making such a proposition, it cannot be moved for in committee if his lordship withhold assent. In that case, however, it will become doubly important to endeavour to procure the enactment of the other clauses, substituting the present commissioners for the proposed director, and omitting also the tenth clause, which, without a medical director, would be needless.

Probably in a fortnight or three weeks these clauses will be submitted to the House of Commons. If the little time that remains for action be well employed by the profession, *some* parliamentary support may be obtained.

The question is so perfectly distinct from the agitation on Medical Reform, that I trust the corporations and their friends will be prompt in petitioning for the adoption of these clauses, and in securing parliamentary votes in their favour.—I am, sir,

Your obedient servant,
H. W. Rumsey.

Gloucester, Feb. 15, 1841.

1. And be it enacted, that it shall be lawful for Her Majesty, her heirs, and successor, by warrant under the Royal Sign Manual, to appoint one fit person, being a physician or a surgeon lawfully qualified to practise in physic or surgery, for a period of not less than ten years to superintend all matters concerning the medical relief of the poor in England and Wales, under the authority and subject to the approval of the Poor Law Commissioners, and to be styled, "The Poor Law Medical Director for England and Wales;" and also from time to time, at pleasure, to remove such medical director; and upon any vacancy in the office of medical director to appoint some other such person to the same office: and all rules, orders, and regulations, relating to medical relief shall be sealed or stamped with the common seal of the Poor Law Commissioners, and shall have the same force and effect, and be received in evidence in like manner with other orders, rules, and regulations, sealed or stamped with the said seal.

2. And be it enacted, that the Poor Law Medical Director, under the authority of the Poor Law Commissioners, shall, after the passing of this Act, proceed with all convenient dispatch to take into consideration the size and population of every district for the administration of medical relief throughout England and Wales to be committed to the charge of a medical officer, in order to

settle the extent and boundaries thereof upon the scheme following; that is to say, that no district shall include a larger population than ten thousand persons:—

That districts of greater area than eight thousand acres shall not include a population of more than four thousand persons.

That districts of greater area than one thousand acres shall not include a population of more than six thousand persons.

That districts of area less than one thousand acres may contain a population not exceeding ten thousand persons.

And that the medical directors shall within three years after the passing of this act complete the regulation of all districts throughout England and Wales, and submit the schemes thereof, specifying the extent and boundaries and population of all such districts, to one of the principal Secretaries of State; and such scheme shall be laid before both Houses of Parliament within six weeks after the receipt of the same by such principal Secretary of State, if Parliament be then sitting, or if Parliament be not then sitting, then within six weeks after the next meeting thereof.

3. And be it enacted, that on or before the day of next, after the passing of this Act, the Guardians of the Poor of every Union shall, for each parish belonging to such Union, cause to be prepared a list to be called the Medical Paupers' List, which shall contain the names of all poor persons residing in such parish, who at the time above specified are in the actual receipt of out-door parochial relief of any description; and to these names shall be added on the same list the names of any other individuals of the same parish not in the actual receipt of parochial relief; but for whom the said Guardians might be willing to provide medical relief in the event of sickness or bodily ailment, or injury from accident, or otherwise.

And on the said day of in each succeeding year the said guardians shall revise and amend the several Medical Pauper-Lists of their Union by erasing the name or names of any person or persons who may be deceased or have quitted the parish, or have been removed into a workhouse, or for whom the said guardians intend no longer to provide medical relief, and by adding at their discretion the names of such other poor persons only, residing in the parish, as shall not be then sick or suffering from bodily injury, and for whom the said guardians intend to provide medical relief when necessary.

And the said guardians shall, as soon as possible after the preparation and revision of the said List, transmit a copy thereof to the medical officer appointed to attend the parish to which it refers, and such medical officer on application being made to him by or on behalf of any person sick or suffering from bodily injury, whose name shall at the time of such application be upon the said List, shall forthwith afford to such sick or injured person the necessary medical relief.

4. And be it enacted, that on or before the said day of in every year the guardians of every Poor Law Union shall fix and determine for the ensuing year, within the limits specified in the schedule marked A hereunto annexed, and subject to the approval of the Poor Law midical director, and subject also to the several augmentations hereinafter designated, the sum or amount of remuneration to be paid to each medical officer appointed to attend such Union, or any district or separate parish thereof, for every individual on the Medical Pauper List; and the sum or amount of remuneration so fixed and determined by the said guardians and approved by the said director shall be augmented in the following ratio; that is to say, whenever the area of the parish which such medical officer may be appointed to attend shall exceed one thousand acres, and be less than eight thousand, the amount of such augmentation shall be equal to one-fourth part of the said sum or amount of remuneration, and to two-fourth parts thereof when the area of such parish shall contain eight thousand acres and upwards.

And in addition to this augmentation, according to the extent of the parish, a further augmentation shall be made according to the distance in the case of every parish which shall not contain the place of residence of the medical officer appointed to attend it; that is to say, for every mile of distance from the residence of such medical officer to the nearest boundary of the parish he is appointed to attend, he shall receive a further augmentation equal to one-fourth part of the amount of remuneration fixed and determined as aforesaid; such distance to be computed in all cases by the course of the accustomed highway.

5. And be it enacted, That if in any parish belonging to a Poor Law Union, any poor person whose name is not on the medical pauper list of such parish, shall be seized with sickness or sustain bodily injury, so as to render medical assistance necessary, it shall be lawful for the relieving officer or overseer of such parish, or for any justice of the peace, to grant to such poor person an order in writing, addressed to the medical officer appointed to attend such parish, which order shall be in force during three calendar months from the date thereof, and upon the receipt of such order the said medical officer shall promptly afford to the said sick or injured person the necessary medical relief, and shall continue to do so until the patient shall be recovered in the said term of three calendar months expired; provided that if

the patient shall not be recovered at the expiration of the said period of three calendar months, a new order shall be obtained.

And as a remuneration to the said medical officer for such casual attendances, he shall in addition to his other remuneration of whatever kind, receive for every such order a sum double the amount of the aforesaid sum, and of any augmentation thereof, to be paid for every individual on the medical pauper list of the parish, in which any such casual attendance may occur: Provided always, that in cities and towns containing a population of more than ten thousand persons, the sum to be paid for every such order shall be fixed and determined as aforesaid, within the limits of the schedule B, hereunto annexed.

6. And be it enacted, That on or before the said day of , in every year, the guardians of every Poor Law Union shall fix and determine for the ensuing year within the limits specified in the schedule marked C, hereunto annexed, and subject to the approval of the Poor Law Medical Director, the sum or amount of remuneration to be paid to the medical officer appointed to attend any workhouse belonging to the said Union: Provided always, that the amount of such remuneration shall depend upon the average weekly numbers of inmates of such Union Workhouses.

7. And be it enacted, That if by virtue of any order to be hereafter made by the Poor Law Medical Director, the guardians of any Union shall think proper to provide medicines and other necessaries appertaining to medical relief, for the uses of the pauper patients of their Union, paying competent persons to prepare and dispense the same, and appointing medical officers for the sole purpose of attending and prescribing for the poor of the Union who may be sick or suffering from bodily injury; the said guardians shall in such case deduct one-half from the remuneration to be paid to the medical officer, exclusive of and without affecting the augmentation made as aforesaid, on account of the extent of any parish, or the distance of such parish from his residence.

8. And be it enacted, That on or before the aforesaid day of in every year, the Guardians of every Poor Law Union shall fix and determine, subject to the approval of the Poor Law Medical Director, the amount of remuneration to be paid to any Medical Officer, appointed to attend such Union or any District thereof, for attending any poor woman in childbirth, whether she be an inmate of a workhouse or not.

Provided, however, that if such Medical Officer be called upon to attend any such poor woman in labour, at the instance or during the attendance of any female midwife employed or paid for such attendance by the said Guardians, he shall receive for every such attendance the sum specified in the schedule marked D, hereunto annexed.

9. And be it enacted, That the Medical Officers of every District, shall, on or before the day of in every year after the passing of this Act, transmit to the Medical Director a District Report, stating the numbers of persons who shall have received Medical Relief during the preceding year without his District, the expenses of such relief, and the proportions and manner in which such expenses have been, or will be, defrayed; the distance of his own place of abode from the most remote inhabited part of his District, and, if he shall not reside therein, in addition to such particulars as aforesaid, the distance of his place of abode from the nearest inhabited part of such District, and all such other matters as the Poor Law Medical Director, under the authority of the Poor Law Commissioners, and by their orders, shall from time to time require to be included in such District Report, for which he shall be paid by the Guardians the sum of one Guinea. And that the Poor Law Medical Director shall once in every year prepare a General Report, comprising the substance of such District Reports, and all proceedings relating to medical relief in such year, and cause such General Report to be annexed to the Annual Report of the Poor Law Commissioners, in order that the same may be submitted therewith to one of the Principal Secretaries of State, and laid therewith before both Houses of Parliament.

10. And be it enacted, that if any medical officer appointed to attend any union, or district, or parish, or workhouse thereof, shall neglect or refuse to administer medical relief to any poor person, within the said union, district, parish, or workhouse, entitled to such relief, under this act, he shall forfeit his appointment, on sufficient evidence of such refusal or neglect being furnished to the medical director who shall adjudicate thereon.

11. And be it enacted, that the schedules marked A, B, C, and D, hereinbefore mentioned, and annexed hereunto, shall severally continue in force for the space of three years after the passing of this act. And it shall be unlawful for the guardians of any Poor Law Union to attempt, by advertisement or other public notification, or in any manner whatsoever, to obtain tenders or offers relating to the remuneration specified in this act, to be given for the performance of the duties of medical officers, or to be received under any contract made, or to be made, according to the provisions of an Act of Parliament passed in the Session of the third and fourth years of the Reign of Her Majesty Queen Victoria, intituled, "An Act to Extend the Practice of Vaccination."

12. And be it enacted, that no person shall hereafter be eligible to receive the appointment of medical officer of any district not being duly qualified to practise as a surgeon and physician, or as a surgeon and apothecary, unless he shall be in actual practice as a surgeon or apothecary at the time of passing this act, and that no person shall be so eligible until he shall have been in surgical or medical practice for three years.

Schedules to which these clauses refer.

(*A*) Not less than 3s. nor more than 4s. for each individual on the Medical Pauper List.

(*B*) Not less than 4s. nor more than 5s. for each case.

(*C*) Not less than 4s. 6d. nor more than 6s. for each individual of the average weekly number of inmates.

(*D*) One guinea, and in addition to the same 1s. 6d. for every mile of distance between the place where the patient is and the residence of the medical officer.

FOREIGN MEDICAL DEGREES.

To the Editor of the Medical Gazette.

SIR,

IN your journal of last Saturday is a letter on the subject of foreign degrees, which, being a foreign graduate myself, I feel called upon hastily to analyze. In the first place, I must be allowed to observe that your correspondent has not acted over prudently in confessing himself to have graduated at Giessen, a degree from which university is, as a general rule, regarded with some little suspicion by the professors at least of the Saxon and Prussian universities. During my residence at one of the last-mentioned schools, I well recollect the amusement created amongst a coterie of mature medical students by the sudden elevation of an elderly Greek student to the rank of M. D. At the university of which I am speaking, and at which, for the sake of convenience, he resided, our worthy Hellenist had not the slightest chance of graduating, for, in one word, of medicine he had learnt *nothing*. Another university, however, proved less scrupulous, and, in return for the usual fees and three paltry exercises on medical subjects, TRANSCRIBED—*not composed*, by the candidate, he received a formal diploma of M. D. This not inflexible school was no other than *Giessen*. I can assure you, sir, that the above story, so far from being exaggerated, falls short of the real flagrance of the case, although I by no means wish it be inferred from it that all graduates from Giessen have been treated with equal indulgence.

The next point to which I would briefly refer is the declaration on the part of your correspondent that, whereas some years ago he was as conversant with minute anatomy and with chemistry as with his own name, he is wholly unprepared to answer questions on those subjects *now*. I maintain that if *he really have been so great a proficient in those sciences*, even though he may in the course of years have forgotten them in part, a few weeks' application would refit him for all the purposes of examination. That he should so entirely have forgotten his Latin as he confesses or professes to have done, goes far in my opinion to prove that his knowledge of it can never have been very perfect. "Ignora ntiam non excusat lex," is a maxim as applicable, I should think, to the law of medical examinations, as to the laws by which society is governed in general.

Your correspondent, after proposing that foreign graduates already in practice in England should be exempted from an examination, is by no means so indulgently disposed towards those whom Germany and Scotland may still hold in store for us. Magnanimously,—perhaps rather naively,—certainly not quite *un-Irishly*, doth he exclaim: "let the iniquities of the past be buried in oblivion, but most carefully guarded against in future enactments." So that those who have persisted in practising medicine in defiance of the laws of the College, are at length to be rewarded for their patient perseverance in error! And our Giessen M.D. has even the assurance to talk of the "rights enjoyed" by him and by others similarly qualified (?) for practice; as if continuance in error constituted prescriptive right.

Finally, your correspondent has attacked the contemplated measure of the College upon the ground of its inexpediency, as being productive of retaliative measures abroad. On this ground you appear not wholly disinclined to agree with him. I know the continent well, and it is my firm belief that not a single English physician would be allowed to practise in any continental city whatsoever, if such indulgence were not deemed by the local authorities to be an additional inducement to English families to reside there, and thus to deposit there a portion of their wealth. In what continental town is a graduate ever consulted by the British stationary inhabitants, unless it be by the very poor, whom he will probably have to bestow something more than a mere prescription upon? In fact, the permission to practise in foreign countries, if the English practitioner is fortunate enough to obtain one, refers always and exclusively to his own countrymen. Let, then, the College be similarly indulgent towards the *foreign physician*, but let it pause ere it extends its liberality too widely.

I have the honour to be, sir,
Your most obedient servant,
A LICENTIATE.

London, February 15, 1840.

MR. CHILDS IN ANSWER TO MR. CHALK.

[We have received Mr. Childs' second note, but, as before, must decline inserting his letter, except in the *extra limites*. We give, however, two extracts, which contain all that appears to us essential.]

In the season of 1838 I was appointed, by the Medical Board in London, House-Surgeon to this Institution, during which time it appears Mr. Chalk has thought proper to accuse me of stealing from him the *little* knowledge he possessed on the peculiarities and treatment of certain affections which have come under his notice; but I deny, *in toto*, that any observation of his ever served to enlighten my views respecting the treatment of scrofulous affections; on the contrary, they always appeared to me theoretical and visionary.

* * * * * *

I beg leave to state, that Mr. Chalk is indebted to me for many of the views which he possesses on this subject. I would not arrogantly assert them as original, but derived from the practice and long experience of a zealous and honoured member of the profession, one who has long since been numbered with the dead*.

I do not recollect ever having ten minutes' conversation with Mr. Chalk on the subject of sea-bathing: my information has been derived from a silent but close attention to its effects on different constitutions and diseases.

Mr. Chalk states, that he had shown me Mr. Coulson's letter; that I promised secresy in everything that related professionally to this Hunter of his age, and admitted that I had been requested by Mr. Coulson to furnish him with a report of particular cases under his care. Now every one of these assertions I positively deny.

APOTHECARIES' HALL.

LIST OF GENTLEMEN WHO HAVE RECEIVED CERTIFICATES.

Thursday, Jan. 28, 1841.

Joseph Cheetham, Louth.—R. H. Oakley, Monmouthshire.—B. Winstone, London.—R. Miln[illegible] Manchester.

Thursday, Feb. 4, 1841.

J. M. Stansfeld, Leeds.—H. W. Atki[illegible] Liverpool.—J. George, Yarpole, Herefordshi[illegible] F. W. Casson, Hull, Yorkshire.—W. E. Badd[illegible] Newport, Shropshire.—B. [illegible] Hodnet, Sh[illegible]shire.—J. Dale, Hanley [illegible]shire.

ROYAL COLLEGE OF SURGEONS.

LIST OF GENTLEMEN ADMITTED MEMBERS.

Friday, February 5, 1841.

R. Dendy.—R. M. Smith.—J. Williams.—F. Bainbridge.—B. W. Micklethwait.—G. H. L. Rickards.—R. Couchman.—T. C. Pyman.—E. Russell.

A TABLE OF MORTALITY FOR THE METROPOLIS,

Shewing the Number of Deaths from all Causes registered in the Week, ending Saturday, the 6th February, 1841.

Small Pox	59
Measles	15
Scarlatina	10
Hooping Cough	57
Croup	5
Thrush	2
Diarrhœa	3
Dysentery	2
Cholera	0
Influenza	1
Typhus	21
Erysipelas	4
Syphilis	0
Hydrophobia	0
Diseases of the Brain, Nerves, and Senses	128
Diseases of the Lungs, and other Organs of Respiration	316
Diseases of the Heart and Blood-vessels	19
Diseases of the Stomach, Liver, and other Organs of Digestion	64
Diseases of the Kidneys, &c.	2
Childbed	8
Ovarian Dropsy	0
Diseases of Uterus, &c.	5
Rheumatism	2
Diseases of Joints, &c.	2
Ulcer	1
Fistula	0
Diseases of Skin, &c.	1
Diseases of Uncertain Seat	103
Old Age or Natural Decay	72
Deaths by Violence, Privation, or Intemperance	21
Causes not specified	4
Deaths from all Causes	926

METEOROLOGICAL JOURNAL.

Kept at EDMONTON, *Latitude* 51° 37 32" *N.*
Longitude 0° 3′ 51″ *W. of Greenwich.*

Feb.	THERMOMETER.				BAROMETER.		
Wednesday 10	from	24	to	30	29·92	to	29·88
Thursday . 11		26		39	29·78		29·65
Friday . . 12		33		46	29·58		29·70
Saturday . 13		37		46	29·63		29·42
Sunday . . 14		42		51	29·17		29·20
Monday . . 15		40		49	29·24		29·11
Tuesday . 16		41		51	29·08		29·13

Winds S.E. and S.W.

Except the afternoons of the 12th, 14th, and [illegible] cloudy; a little rain fell on the 11th, and [illegible]llowing days.

[illegible] fallen, 355 of an inch.

CHARLES HENRY ADAMS.

N[illegible]

[illegible]alk's pa[illegible]e, but is un[illegible] postpo[illegible] next week for [illegible]e.

[illegible]LVY, [illegible] London.

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* Any one who has [illegible] Armstro[illegible] "Practice of Physic," [illegible]d his attention directed to this s[illegible]

THE

LONDON MEDICAL GAZETTE,

BEING A

WEEKLY JOURNAL

OF

Medicine and the Collateral Sciences.

FRIDAY, FEBRUARY 26, 1841.

LECTURES
ON THE
PRINCIPLES AND PRACTICE OF PHYSIC,

Delivered at King's College, London,

BY DR. WATSON.

LECTURE XXIII.

Acute and general inflammation of the encephalon. Period of excitement. Modes in which the disease may commence. Period of collapse. Treatment. Delirium tremens.

ACUTE inflammation does sometimes appear to invade at once the whole of the parts that are lodged within the skull; or, beginning in one part, it extends rapidly to all the rest. As the contents of the cranium are called, collectively, the encephalon, so the disorder which I am about to consider has been named *encephalitis*. It is an uncouth appellation, but it will serve its purpose. Cullen, and many others, apply the term *phrenitis* to the same disease. You may choose between these names, taking care to remember what they signify. The malady is sometimes described as inflammation of the *membranes* of the brain. I believe this to have arisen from the circumstance that the effects of the inflammation, which become visible after death, are often more striking and obvious on the surface of the brain, or in its ventricles, than in the cerebral substance itself. An *abscess* in the nervous mass can scarcely be overlooked: a *softening* of the cerebral pulp may escape the notice of a hasty or inexpert observer: and those changes of colour, which sometimes denote increased vascularity of the same part, may very easily be passed over without attracting much attention.

Phrenitis, or encephalitis, or acute and general inflammation of the brain and its membranes, as it occurs in adults, presents two periods, which are marked by different symptoms, and in most instances are very distinctly observable. In the first period what are called symptoms of excitement predominate; the functions of the organ are exaggerated as well as disordered: in the second period those symptoms appear which are comprised under the term collapse. Sometimes these two periods, instead of following each other, are more or less mixed and confounded together. But the distinction is real, and requires to be attended to.

Period of excitement.—The symptoms that characterize the period of excitement, are pain of the head, often intense and deeply seated, or extending over a large part of it; a sense of constriction across the forehead; throbbing of the temporal arteries; flushing of the face; injection of the eyes, which have a wild and brilliant look; contraction of the pupils; preternatural sensibility to external impressions, amounting frequently to impatience of light, and of sound; violent delirium; want of sleep; paroxysms of general convulsion; a parched and dry skin; a frequent and hard pulse; a white tongue; thirst; nausea and vomiting; constipation of the bowels.

You are not to look for all these symptoms in every case; nor to conclude that your patient has not inflammation of the brain because the symptoms I have been enumerating do not all present themselves, or do not take place in any regular order of succession.

Modes in which the disease commences.—In fact, we find, in actual practice, that encephalitis is apt to come on, to commence I mean, as far as symptoms are concerned, in three or four different ways.

Sometimes there is a sudden alteration of manner, and the patient, complaining probably of his head, becomes all at once and furiously delirious; and fever is lighted up. These are symptoms which cannot pass without notice, and which immediately direct one's attention to the head. They may, however, be fallacious, as we shall see by and by.

In other cases the first thing noticed is nausea and vomiting: and these symptoms may soon cease; or they may continue several days, and even sometimes throughout the whole course of the disease. Great quantities of yellow bitter fluid are brought up, evidently containing a good deal of bile; and whatever is introduced into the stomach, even a small quantity of the most simple drink, is immediately rejected. With this state of matters there is generally much constipation, and the bowels refuse to act except under the influence of strong purgatives.

It is important to attend to these symptoms; for occurring, as they usually do, with headache, they may easily deceive a person who is not previously aware of what they may portend. If the patient has not been accustomed to sick headaches, and if the epigastrium and abdomen be natural, not tender, nor distended, as they are apt to be when the stomach itself is in fault, we have the more reason to look narrowly into the case, and to suspect that some serious mischief, of which the nausea is a token, is going on in the brain. I may observe by the way, that where there is much vomiting of bile, persons are apt, both patients and their doctors, to blame the liver, to set down the disorder as bilious; but you ought to be aware that whenever vomiting is often repeated, or long continued, bile is to be expected in the matters brought up: the action of the duodenum, as well as that of the stomach, is inverted; and the bile passes in the wrong direction. If you have ever suffered from sea-sickness, you must know that after the puking has gone on for a little while, bile is constantly voided.

Again, some cases of acute inflammation of the brain set out neither with sudden and great disturbance of the intellectual functions, nor with sickness and vomiting, but with a paroxysm of general convulsion, such as often ushers in an attack of meningitis. This symptom, according to Andral, is a much more certain sign of cerebral inflammation, than the occurrence of active delirium: and I quite agree with him in so thinking.

It is probable (but I speak conjecturally only) that this diversity of symptoms, marking the onset of encephalitis, may depend upon the part in which the inflammation begins; and that it is soon propagated from that part to the whole of the organ. I should suppose that when nausea and vomiting are the earliest symptoms, the inflammation has taken its point of departure in the cerebral pulp; in the substance of the brain: and that when the attack comes on with a sudden fit of convulsion, the inflammation has commenced in the pia mater or arachnoid. This is consonant with what we know of inflammation of those parts, when they are separately affected. Again, it seems to me presumable that the cases which are characterized by early and fierce delirium are cases in which the inflammatory action has invaded the whole of the encephalon, substance and membranes, simultaneously. I say I offer these as conjectures of my own: what it is of importance for you to remember is, that inflammation of the brain does commence in the three several ways that I have been describing.

There are some cases, however, that cannot be brought within even this general rule. They begin in some irregular or obscure manner, or with some unusual phænomenon. Andral states that he has seen a few striking instances of inflammation of the brain, of which the first sign was a sudden loss of the power of speech: and Dr. Abercrombie relates a very remarkable case in which the same thing happened. I call it very remarkable, as well on account of the singular manner in which the disease first shewed itself, as that it furnishes an example of encephalitis produced by direct exposure to intense heat of the sun —insolation; an event very uncommon in our climate. It occurred in the practice of a surgeon at Selkirk, in Scotland:—

"A young man, aged 16, bathed twice, on the 5th of June, 1818, in the river Tweed. After coming out the second time he lay down on the bank, and fell asleep without his hat, and with his head exposed to the direct beams of a hot sun. On awaking, he was speechless; but walked home, and seemed to be otherwise in good health. He was bled and purged, and the next day recovered his speech, but lost it again at intervals several times during the three or four following days. He was forgetful, and his look was dull and heavy: he made little complaint, but when closely questioned said he had a dull uneasiness at the back of his head. After a few days more he had squinting and double vision, and a very obstinate state of bowels, and his pulse was 60. After farther bleeding the pulse rose to 86; but he sank gradually into coma, and died on the 30th."

The substance of the brain in general was found highly vascular, and a very considerable extent of it was in a state of softening mixed with suppuration. The ventricles were distended with fluid, and the membranes in many places were much thickened. One very curious circumstance (affording perhaps some explanation of the readiness with which the inflammation was produced) was, that the cranium was of very unequal thickness at its upper part; one spot, as big as a sixpence, was as thin as writing paper, and transparent.

Period of collapse.—However, the phænomena which I mentioned at first constitute the common and ordinary symptoms of acute inflammation of the brain and its membranes. They continue for a variable period; from twelve hours, to two days, or more; and then they are succeeded by others, which characterise the second stage of the complaint, or the period of collapse, as it is called. They result, I apprehend, from the events and products of the inflammatory action; the violence of which is over or abated. The patient ceases to complain of headache; instead of being excited or wildly delirious, he mutters indistinctly, and falls into a state of stupor, from which it is difficult, and at length impossible, to rouse him. His vision and hearing are no longer painfully acute, but dull, or perverted; strabismus and double vision are not uncommon; and the pupil, from being contracted to the size of a pin's head, becomes first oscillating, then widely dilated, and ultimately motionless. The patient is not shaken, at this period, with violent convulsions; but twitchings of his muscles, and startings of their tendons come on, and some of his limbs are agitated with tremors, or become powerless and palsied; the countenance is ghastly and cadaverous; cold sweats break out; the sphincters relax: at length the coma becomes profound, and life ceases.

The disease, when it proves fatal, as it too often does, mostly runs a rapid course. It may kill in as short a time as 24 or even 12 hours; or the patient may struggle on for two or three weeks. The morbid appearances met with in the dead body are very various. Serous or puriform effusion into the ventricles, and into the meshes of the pia mater; layers of coagulable lymph between that membrane and the arachnoid; softening of the cerebral substance, with pus infiltrated into the softened parts; or great vascularity, shewn by a pink or purplish mottling of its cut surface, giving it a stained appearance.

Treatment. — Let us next consider the treatment required for this frightful disorder.

It is quite plain that in an organ so essential to life, and of such delicate organization as the brain, and in which changes so irreparable in their nature as many of those I have just enumerated, so readily take place under acute inflammation, we cannot hope to be of much service unless we see and treat the case at an early period. On this account it becomes exceedingly important to recognize the nature of the disease at its very commencement; and, therefore, I have taken pains to point out to you the various forms which it may assume, while it is yet within the reach of remedial measures.

The principal of those measures are *blood-letting, purging, and the application of cold to the head.* All the particulars of the antiphlogistic *regimen* are to be rigidly observed; the patient should be kept as much as possible in silence, and darkness, with his head high, and on a firm pillow. And the antiphlogistic *remedies* are to be employed with decision and energy.

Blood-letting.—With respect to bleeding I can only repeat what I have said before: the blood should be taken in a full stream, and suffered to flow till some decided impression is made upon the pulse; or until syncope occurs, or is evidently at hand. After the patient has rallied a little, blood should be taken by cupping or leeches from the back of the neck, or the temples, or the mastoid processes; and these depletory measures must be repeated according to the violence or continuance of the symptoms which first demanded them.

Cold.—The application of cold to the head is a remedy of great importance in this disease. The head must be first shaved; and the mere removal of the hair is sometimes followed by a manifest abatement of some of the most urgent symptoms; of the pain, for example, and of the delirium. In cases such as I am now supposing, it will not be enough to apply wetted cloths to the head: the application must be colder than the ordinary temperature of cold water; and it may be made colder by ice; and the best way to ensure a permanent depression of the superficial heat is to put some pounded ice with a little water into a thin and flexible bladder, and to lay it on the patient's head: there should not be too much ice, or its weight may be injurious. This is generally very grateful and pleasant to the feelings of the patient; and we often have the satisfaction of perceiving that, with the reduction of the external heat of the head, there is also an evident mitigation of the violent symptoms; the agitation and delirium are calmed, and the patient sleeps, or recovers his senses.

Another excellent and most powerful method of applying cold, is by pouring cold water in a slender stream upon the vertex of the head, until it produces some marked effect. Of course this, as well as all other strong measures, must be adopted with great caution, and its influence closely watched: I mean it is not to be left to the discretion, or indiscretion, of domestics and nurses. Dr. Abercrombie tells us that he has seen a strong man, submitted to the operation of this cold douche, "thrown in a very few minutes into a state approaching to asphyxia, who immediately before had been in the highest state of maniacal excitement, with morbid increase of strength, defeating every attempt of four or five men to restrain him." He gives an instance of the use of this measure in a somewhat different morbid condition, which I will quote, because it shews in the first place the striking power of the remedy; and, secondly, the simple mode of applying it. A strong plethoric child, five years old, after being for one day feverish, oppressed, and restless, fell rather suddenly into a state of perfect coma. She had been in that state about an hour when Dr. Abercrombie saw her. She lay stretched on her back motionless, and completely insensible; *her face flushed and turgid.* She was raised into a sitting posture, and, a basin being held under the chin, a stream of cold water was directed against the crown of the head. In a few minutes, or rather seconds, she was completely recovered; and the next day was in her usual health.

This measure also is to be repeated, according to the circumstances of the case.

Some persons recommend that a constant dripping of cold water upon the patient's shaven head should be kept up. This may easily enough be managed by means of a sponge and funnel placed a little above the head. Andral mentions his attending with another physician, (M. Recamier) a young man who laboured under all the symptoms of acute inflammation of the brain. Cold water was made to drop slowly upon his head, and a complete recovery took place, although no other active treatment of any kind was adopted.

In strongly recommending this efficient remedy to your notice, you will not understand me to advise that it should supersede the use of copious blood-letting: it is to be employed as an auxiliary to the lancet; not as a substitute for it.

Purgatives.—The third remedy which I named, that it to say, purging, is also of great importance and efficacy. But it must be *hard* purging. There is a great tendency to obstinate constipation in most cases; and this must be overcome, and free and frequent evacuations from the bowels obtained: five grains of calomel and fifteen of jalap should be followed in three or four hours by a strong black dose; and after that I should give, in such cases, three or four grains of calomel every four hours, and repeat the black dose at least every morning, until the symptoms gave way. If the mercury thus exhibited affects the gums, so much the better; but we must not, in this disease, combine it with opium, to prevent its passing off by the bowels. Dr. Abercrombie uses this strong language in reference to the value of purgative medicines in acute inflammation of the brain. "In all the forms of the disease active purging appears to be the remedy from which we find the most satisfactory results; and although blood-letting is never to be neglected in the earlier stages of the disease, my own experience is that more recoveries from head affections of the most alarming aspect take place under the use of very strong purging than under any other mode of treatment. In most of these cases, indeed, full and repeated bleeding had been previously employed, but without any apparent effect in arresting the symptoms." He has found the croton oil the most convenient medicine for this purpose.

Dr. Abercrombie is disposed to regard mercury as being useful in affections of the brain, chiefly in virtue of its purgative operation: and the opinions of a physician of his large experience, and observing mind, must and ought to have great weight. But I must not conceal from you my own persuasion that, in the early periods of acute inflammation of the encephalon (and it is of the early periods that I have hitherto been speaking), if the mercury comes in a short time to produce its specific influence upon the gums, a great change for the better will often be perceived: such is the result of my own observation. Recollect, however, that you are not to give calomel with the direct object of affecting the gums, but as part of the purgative plan, and you take the chance of its specific effect. You must not combine opium with it, for two reasons; first, you would thereby shut up the bowels, and deprive yourself of the use of one of your best weapons; and, secondly, you would incur the risk of augmenting and perplexing your patient's head symptoms, and of puzzling yourself; since you would not be able to determine how much of the coma that ensued was owing to the progress of the disease, how much to your remedy.

When the second order of symptoms have arrived, those which are included under the general phrase of collapse, and which commonly result, I fancy, rather from the products of the inflammation than from the inflammation itself; from softening, that is, and from pressure exerted by effused serum, or lymph: when this order of symptoms make their appearance, I believe the time for doing much good by active bleeding has gone by. If, however, blood-letting has not yet been employed, and especially if the pulse continue hard, whether blood has been already abstracted or not, it will be right to give the patient the chance of that remedy. Of the propriety of doing so, take the following illustration:—"A girl, aged eleven, had violent headache and vomiting, with great obstinacy of the bowels; and these symptoms were followed by dilated pupils, and a degree of stupor bordering upon perfect coma; pulse 130. She had been ill five or six days: purgatives, blistering, and mercury to salivation, had been employed without benefit. One bleeding from the arm gave an immediate turn to this case; the headache was relieved, the pulse came down, the vomiting ceased, the bowels were freely acted upon by the medicines which they had formerly resisted, and in a few days she was quite well." (*Abercrombie*). I must recite one other case—from among many which go to the same effect—to shew the occasional influence of *hard purging*. "A young man who had had cough and dyspnœa, and been bled for those symptoms, appeared convalescent. One evening he became affected with headache, and some vomiting. About midnight, having got out of bed to go to stool, he fell down in a state of violent and general convulsion. The convulsion returned during the night six or seven times with such violence that one of the paroxysms continued without intermission for an hour. The pulse, during the night, varied from 60 to 120. (I should have mentioned before these great and rapid fluctuations of the pulse in respect to its frequency, as being a very common circumstance and sign, in inflammatory affections of the brain.) At first it was found impossible to bleed him, on account of the violence of the convulsions; but about seven in the morning a full bleeding was obtained, after which the convulsions ceased, except some slighter attacks during the day, which appeared to be arrested by pouring cold water over his head. The next day he was oppressed; with occasional tremors of the limbs, and some vomiting, and he had one or two threatenings of convulsion. He took repeated doses of active purgatives with little effect; and on the following morning he appeared to be sinking into a state of perfect coma, with a pulse at 50. Croton oil was now given, which operated powerfully seven or eight times. He passed a good night; and the day afterwards was free from complaint.

Having this evidence of the separate efficacy of the three remedies—blood-letting, strong purgatives, and the local application of cold to the head—we have much encouragement to put them into combined operation in these very serious cases, especially when we have the opportunity of using them at an early period. Should the disorder happily yield to these measures, great care will long be required on your part, and great prudence on the part of the patient and his friends, lest the recent mischief should rekindle. A relapse is even more perilous than the first assault of the disease. Such prudence and care will consist chiefly in the avoidance and denial of all that might excite and disturb the brain; whether it be a premature return to animal food; or indiscreet and fatiguing interviews and conversations; or the too early resumption of the cares and concerns of business.

Are we to employ blisters in this disease? Not in the outset, during the period of excitement. They only add to the irritation, and make matters worse. And especially you should avoid putting them, as many are apt to do, upon the head itself, at that stage of the disease. We should not suppose, *a priori*, that they could then, and in that place, have any beneficial effect. They cannot divert the blood from the inflamed part; but they may attract it into the external vessels of the head, and therefore towards the encephalon; and so add to the stress of the general circulation upon the arteries of the brain. If they could be supposed to do any good at all, it would be when they are placed upon the feet or legs. But this kind of revulsion is better accomplished by means of mustard poultices, or fomentations with hot water, which are often of much apparent service, in addition to the measures already spoken of. Experience confirms what reason teaches us to expect in this matter.

When, however, the patient has sunk into a state of coma, he has sometimes, in my experience, emerged from that condition after a cap of blistering plaster has been put upon the head. It is only when the violent symptoms of excitement have abated that I can venture to advise you to employ blisters: they may then be applied to the nape of the neck, or behind the ears, or to the head itself.

The symptoms which I enumerated as marking the period of collapse or sinking, are fearful symptoms; but the conditions on which they depend are not, necessarily, hopeless conditions. These symptoms do not always proceed from fatal disorganization of the brain, but sometimes (there is reason to believe) from simple exhaustion of the nervous power. And this is a point of critical importance. Patients apparently moribund are occasionally saved by the judicious administration of stimulants and restoratives; of ammonia, Hoffman's anodyne, beef-tea, wine, and, it may be, of well-timed opiates. This plan of treatment you must therefore cautiously try, when an extreme degree of collapse occurs. If the structure of the brain be already seriously injured, and the case is irretrievably mortal, no harm can be done; while in doubtful cases, and when the symptoms result from mere depression of the vital powers, the patient may be rescued: and this chance in his favour must not be thrown away.

Do you ask whether there be any mode of discriminating these opposite conditions, one of which is within, and the other beyond the range of possible recovery? I believe there is. If the tendency to *death by coma* be strong, the prospect is very discouraging: if, on the other hand, the symptoms that mark the mode of dying by *asthenia* predominate, you may hope to push the patient through. But to succeed, you must watch him hour by hour. Pallor, a feeble and flying pulse, extreme debility and tremors, coldness of the extremities, a want of power to respond to external impressions; these are alarming, but not absolutely desperate symptoms, especially if the mental faculties remain. Whereas profound stupor, partial palsy, profuse sweats, are of the worst omen; yet even these do not preclude the trial, together with blistering the head, of internal stimuli; and no other plan affords even a gleam of hope.

There is just one caution that I wish to mention before I leave the subject of acute encephalitis; and it applies to all cases of coma and insensibility, and especially when there is any paralysis mixed with the coma: it is, that you should daily ascertain that the bladder is emptied. Always make the attendants show you the urine that has been passed; and lay your hand upon the hypogastric region, and try whether there is any undue hardness and prominence there, produced by the distended bladder. I shall revert to this matter more particularly at some future time; and I content myself with merely suggesting its importance to you now, in all cases of head affection. If the patient *does not* or *cannot* empty his bladder, of course it must be emptied for him, by means of a catheter.

Delirium Tremens.—It would seem perhaps the most natural arrangement if I next proceeded to speak of inflammation of the brain when it is chronic, or partial. These forms of disease are more common, in adults, than acute and general encephalitis. I shall be obliged also to treat, separately, of inflammation of the brain as it is modified by its occurrence in young children,—of what is called acute hydrocephalus. But before I touch upon any of these, I am desirous to bring under your notice at once a very singular and extremely interesting complaint, which is not, I am persuaded, in its essential nature, inflammatory, but which may easily be mistaken, and has over and over again been mistaken, for acute inflammation of the brain and its membranes, with the consideration of which we have just been occupied. And the mistake is the more serious, because the remedies that I have been recommending for encephalitis, and especially blood-letting, not only are not required, but are in most cases positively injurious, in the disorder of which I am now about to speak; and which is best known under the appellation of *delirium tremens*. Nay this affection of the nervous system may actually be brought on, in a predisposed subject, by the abstraction of blood. I go apparently out of my way in taking notice of this disease n that I may have the opp ng it with encephalitis, that disease are fre certainly resembles it also in many respects: and it has been considered as being an inflammatory disorder by some excellent pathologists.

The symptoms which mark a decided attack of *delirium tremens*, and which have sometimes been found so equivocal, are very striking. You will be summoned to a man who is supposed to be mad, or to have brain fever. You find him with a red face, perhaps, and injected eyes, talking incessantly, fidgetting with his hands, affected often with tremors of the limbs, having a rapid pulse, and bathed in sweat. Now it is very natural that a person not on his guard should look upon these symptoms as indicating inflammation within the head. But if you look closely into the matter you will find in the state of the patient, or in his history, some things very peculiar. The delirium you will generally find to be not a fierce or mischievous delirium, but a *busy* delirium: he does whatever you desire him to do, but he does it in a hurried manner, with a sort of anxiety to perform it properly. During the approach of the malady, while he yet is able to go about, he manifests great impatience of any interference, or advice, or assistance, in his ordinary duties, which he sets about in a bustling and blundering manner. His loquacity is extreme, and he refers to matters that are not present before him: he is not altogether inattentive to the objects and proceedings that are going on around him, but his mind wanders away to other subjects. There is an odd mixture of the real and the ideal in his thoughts and language. Sometimes he is very suspicious that those who are about him intend him some injury; or that he is surrounded by enemies. You will find also that he does not sleep; that he has not slept perhaps for several nights, but been restless and rambling: and you will generally learn that he has been habitually intemperate, or subject to some great source of care, or anxiety, or excitement: and in many cases he has recently been somehow or other debarred from his customary stimulus. Very frequently, in addition to these points in his history, you will be told that having been unwell, first he has been kept upon low diet, and then, as the delirium came on, he has been freely bled; and that he has been none the better, but commonly the worse, for the bleeding. When you gather such particulars as these from his friends (for upon his own statements you cannot place any reliance) and when you find the delirium to have the characters I have been attempting to describe, and especially when there has been obstinate watchfulness, and the tongue is moist, and skin is sweating, you may be pretty that your patient is affected, not with inflammation of the brain, but with delirium tremens; and that if you bleed him further you will make him worse.

But what are you to do under such a fearful state of things? Why the great indication is to procure sleep; and the remedy which, in nine instances out of ten, you will find successful, is opium. The beneficial effects of this drug, in tolerably favourable cases of delirium tremens, are really surprising. I will give you an example or two, which will be more instructive than any abstract description.

In the year 1831, I was requested by a most respectable practitioner in this town, to visit a patient of his whom he reported to have had phrenitis, for which he had been freely bled, cupped from the back of the neck, and purged; and who, he believed, was now rapidly sinking, and not likely to survive many hours. I found the patient, a middle-aged man, with a red face, ferretty eyes, a frequent pulse, bathed in perspiration, busy with his hands, which trembled a little, and talking much and incoherently. He was particularly anxious that his legs should not be scarified, told me he was willing to do any thing I pleased, if I would not scarify his legs, nor let any one else scarify them. There was nothing the matter with his legs, nor had it entered any body's head, but his own, that they wanted scarifying. He had not slept for several nights. He had been intemperate, especially of late, drinking a good deal; and somewhat anxious about his affairs; he was a builder.

His former history was not very promising. He had brought up a good deal of blood a few months before, and some years previously he had had jaundice; latterly he had been troubled with indigestion.

I saw him in the afternoon, and prescribed one-third of a grain of morphia: in the evening he was just in the same state. I then directed half a drachm of laudanum to be given immediately, and twenty drops every two hours afterwards, *till he slept*. I said to the gentleman who had called me to the case, that I thought it very likely our patient might be well the next day; he smiled, and shook his head. I was obliged to leave London early the next morning, for two or three days; on my return, I learned from the medical man that the patient took five doses of the laudanum, and then fell asleep, and slept soundly and for a long time, and then awoke (to his attendant's extreme surprise and satisfaction) sane, and well.

I was asked by the apothecary of the Middlesex Hospital to see a publican in that neighbourhood. I found a large strong man, between 30 and 40 years of age. He had been without sleep for several nights, somewhat incoherent, and (what is not usual in such cases) violent, threatening and striking those about him because they refused him access to strong drink. He was joint proprietor with another in a gin shop, and for some time previously he had been a sot, and daily muddled with drink. He told me he was quite well; there was not much tremor. I found that the object of his partner and relations in sending for me was that I might sanction his removal to St. Luke's, for his strength made him altogether unmanageable, and his insane and extraordinary conduct was hurting the business of the house. I declined to take any part in consigning him to a mad-house, and recommended morphia. After one full dose he soon slept; and the next day he was quite rational, and comparatively well.

These are the broad outlines of delirium tremens; there are many other features wanted to complete the portrait of the disease, which I shall endeavour to paint at our next meeting.

CLINICAL LECTURES,

By Dr. Corrigan,

Delivered in the Theatre of the Richmond Hospital, Dublin,

At the Commencement of Session, 1840-41.

Introductory Lecture.

Gentlemen,—It is the usual practice to commence our course of clinical instruction with some introductory observations, and the accident of my lecture-day falling in an early part of the week causes this duty to devolve upon me. Introductory observations are generally directed either to explain the nature of the subject, or to impress you with an idea of its importance, in order to win your attention to it. Clinical medicine requires little or no explanation as to its nature. It is the study of disease by practical observation at the bed-side. Its importance can scarcely be overrated: whatever doubts may exist or have been entertained as to the necessity of some of the many courses of lectures which students are obliged to attend, there has never been the shadow of a doubt entertained as to the paramount importance of clinical teaching. And yet I am sorry to observe that this department is often more carelessly attended to, than any other branch of the student's pursuits. This is, I believe, not so much the fault of the student as our own; we do not explain sufficiently often, or sufficiently clearly, to him the reasons that should induce him to attend more closely and with greater diligence to the study of clinical medicine. To those reasons I purpose directing these prefatory observations.

It seems not to be sufficiently known or felt by students, that clinical medicine is to theory and systematic medicine, what practical dissection is to systematic anatomy. Bichat, that ornament of our profession, the John Hunter of France, made this memorable observation a short time before his death: "you ask me," said he, "how I have learnt so much? It is because I have read so little. Books are but copies—why have recourse to copies, when the originals are before me? My books are the living and the dead: I study these." Is it not singular, that the truth embodied in this observation should be recognised and acted on in every subsidiary branch of medical study, and yet cease to be remembered, or, if remembered, not acted on, in the most important part of the student's life—the part devoted to the study of disease. A student spends years at anatomy; he knows that anatomy can only be learned by practical acquaintance with the subject before him; he would laugh at the folly of his fellow student, who should be foolish enough to say, that it was not necessary to dissect in order to learn anatomy; and that it was a much better way to read on the subject. How he would smile at the folly of his fellow student who should say, it was only necessary, in order to learn anatomy, to stroll through a dissecting room, throwing a glance now and then at each dissecting table as he passed; and yet the student, who is quite alive to the absurdity of book anatomy, falls into the very mistake when he commences to study disease. Anatomy is not to be learned by strolling through a dissecting room, neither is clinical medicine to be acquired by walking through a ward. If absolute and practical acquaintance with every fibre, nerve, and muscle, in a dead body, is necessary in order to acquire a knowledge of anatomy, how much more is the same practical acquaintance requisite in order to acquire a power of recognizing disease in the living. The characters that belong to each muscle, each nerve, and each vessel, in the dead, can be accurately described, and once described are applicable to every instance; and yet practical acquaintance is still requisite to make the anatomist. And if this be true—and all will admit it—how infinitely more true is it of disease in the living, where the most valuable information as to disease is given by the expression of an eye, the tinge of a skin, the touch of a pulse;—characters that once seen are easily recognized, but which never can be described. It is a great error to suppose that a written description, however accurate, or however diffuse, can give a sufficiently clear idea to the mind of the object described. Read a description of a heart, a lung, or a brain: you can form no clear conception of the object described; you would not be able very often even to recognize it from description, when you meet it for the first time; and if true of anatomy, how much more true of disease in all its delicate hues, its protean shapes. An anecdote which is often told of a late distinguished member of our University will illustrate this clearly: he prized book learning on all subjects, beyond demonstration; he possessed a most accurate knowledge of natural history, but from books alone (just such as I fear many students alone acquire of disease), but he knew nothing of the objects of natural history from actual observation. In a hard winter a poor little sparrow sought shelter in his college rooms; he seized it, and was determined not to lose the opportunity of shewing to his colleagues how ready he could reduce his book-knowledge to practical application. He ran over in his mind classes, genera, orders, and species, and then triumphantly pointed out how rapidly he had arrived at a determination of the species before him. And "pray what is it, said a fellow professor?" "What is it?" replies the indignant vice provost: "as if I did not know! it is a little crow to be sure." This anecdote creates a smile at the mistake and at the folly of the learned professor, who could have so readily avoided falling into such a ridiculous mistake, merely by having cultivated a practical knowledge of his subject: and yet do not you fall every day into the same mistake, and on a much more serious matter, involving both your own reputation, and perhaps your patient's life, when you wilfully pass over the opportunity of cultivating a practical acquaintance with the forms of disease, and trust for your knowledge to a verbal description, which can no more give you a correct notion of the subject, or be sufficient to enable you to recognise it when you meet it, than verbal description was sufficient for the innocent vice provost. You may acquire a knowledge sufficient for all the purposes of examination by mere reading, and you may imagine that having thus acquired it, you have done all that is necessary. So you could, to go back to our illustration, acquire a sufficient knowledge of anatomy for the same purpose; but you will at once admit that such knowledge of anatomy would totally fail for all the practical purposes of surgery. Just in the same way will a book knowledge of medicine fail for all the useful purposes of the practices of medicine, directed either to the diagnosis or the treatment of disease. It is, therefore, necessary for you to bear constantly in mind, that the manner in which you acquire a knowledge of your profession is of as much importance as the matter.

A circumstance that came under my observation within a recent period will still farther illustrate this point. In an examination of my class on practice of medicine, two gentlemen were so equal in their answering, that for some time it was doubtful as to which was the better. One of those gentlemen who answered remarkably well, and with so much credit, that he would extract praise from any court of examiners, I afterwards met in the ward of my hospital, and he positively was not able to recognise or distinguish the commonest disease. He answered altogether from book learning, and from power of memory. The other had acquired his knowledge from practical observation of, and actual acquaintance with, disease. Yet these two gentlemen, on mere verbal examination, were very nearly equal. But how different must be their fortunes in after life! the one, bewildered, and unable to recognise the nature of a case entrusted to him, flounders from one mistake to another, soon betrays his indecision and his ignorance to the scrutinizing observation of anxious and watchful patient and friends, and loses character just when it is of the greatest consequence that he should not make a false step. The other sees before him an object with whose features he is familiar; his manner is steady, his opinion is correct, his treatment is decisive, and the occurrence which has been the destruction of the hopes of the one has become the pedestal for the character and fortune of the other. Impressed with this truth, that the manner in which a knowledge of disease is acquired is of as much consequence to your after success as the knowledge itself, we have determined to give clinical prizes here, but on a new plan. The insufficiency of verbal examination to test practical knowledge is obvious. It is already admitted by some of our examining bodies, before whom it is now necessary for the student to prove his knowledge of anatomy, by making, in presence of his examiners, practical dissections. It is singular that this mode of distinguishing between parrot-like repetition of words and practical knowledge should not as yet have been applied to the most important part of medical examination—the student's acquaintance with disease. We shall, however, set the example. We will trust to no verbal examination; but for the last four months of the session, commencing at any time after the 1st January, we shall, without any previous notice, select such cases as shall seem proper for our purpose on admission into hospital, and require the candidates for our prizes to take those cases, writing down the symptoms, diagnosis, prognosis, and principles of treatment, and giving to each candidate from a quarter to half an hour for his examination of the case; requiring his notes, however, to be written on the spot. The notes thus written will be compared: they will afford at once an accurate test of the practical acquaintance of each candidate with clinical medicine, and the award shall be made from a public comparison of those notes. Our hospital establishment here affords an unequalled field for acquiring a practical acquaintance with disease.

The Whitworth Chronic Hospital contains 82 beds, the Hardwicke Hospital has 144 beds, devoted to fever and to contagious diseases—an extent of field for observation in clinical medicine unrivalled; so that there is not one of all who attend who shall not have the opportunity of being clinical note-takers, who have the good sense to seek for it. On similar advantages in surgery, presented by the Richmond Street Hospital, it is not necessary for me to dwell. The extensive field for surgery presented by that hospital, and the zeal with which it has been cultivated, are too well known to require any commendatory comment. Let me earnestly impress upon you the absolute necessity of accustoming yourselves to the practical investigation and note-taking of cases. Let the opportunity escape you now, and you can never again regain it; and you will bitterly repent it hereafter, when your own character and your patient's life are at stake.

One reason alone which remains to be noticed should be sufficient to induce you to acquire a knowledge of disease from observation in preference to reading; namely, that it is the easier mode. Read for hours, lose your rest in poring over page after page, and endeavouring to infix on your memory a description of any disease with its symptoms; then spend only fifteen minutes in a ward of an hospital, contemplating a case of the same disease. Is not one glance worth pages of description? Numerous associations fix in your mind, and for ever, the appearance and symptoms of a living case of disease which you have examined, and on which you have brought your senses of sight, touch, and hearing, to bear, while the mere verbal description of a disease gives to your mind no definite object; and it is not to be wondered at, that knowledge thus attempted to be acquired is learned with difficulty, is remembered indifferently, and is speedily forgotten. On the ground, then, of mere ease of acquirement, were there no better reason, you should learn disease from actual observation rather than from second-hand description; and yet how common is it to see the industrious student, through a most mistaken notion, lose his rest, and spend his nights in poring over pages of description, while he thinks a quarter of an hour too much to bestow on observation of the object itself, and which would give him the information he wants more easily and far more accurately. That you may have fallen into the error, to the correction of which I am directing these observations, is, however, perhaps more our fault heretofore than yours, as we may not have taken sufficient pains to point it to you. I have, however, endeavoured to repair on our part this omission, and I am sure it will be met with a corresponding exertion on your part. On our outset now, and in our respective relations during the session, let us keep constantly before us these principles—

1. That clinical medicine is to theory and systematic medicine, what dissection is to sytematic anatomy. That as anatomy can only be truly learned at the table of the dissecting room, so can medicine only be well learned by practical observation at the bedside. And,

2. That, as Bichat has observed: "*we are not to look to books for information, when the sources from which books are compiled are before us; that our books are the living and the dead, and those are to be our study.*"

ON HIP DISEASE AND LUMBAR ABSCESS.

By Wm. Oliver Chalk, Esq.

Resident Surgeon to the Royal Sea-Bathing Infirmary, Margate.

[Continued from p. 759.]

(For the Medical Gazette.)

If the limb had not been amputated, the patient might in all probability have lived for years, but the latent mischief being called into sudden activity, under the infliction of the local injury (the operation), the issue was fatal.

I was not present at the autopsy, but I learned afterwards that the substance of both lungs was thickly studded with tubercles, some of which had passed into the suppurative stage, forming cavities. The liver and spleen were also the seat of tubercular deposit. M. Dupuytren, when speaking of this case, and the result of the operation, recalled to the minds of his class his previous forebodings, and declared that he never would be induced to operate again under similar circumstances. It would be well if such cases were of rare occurrence; unfortunately, however, they are too numerous. Patients are frequently admitted into the infirmary (having lost a limb by amputation) with a scrofulous disease of the stump, and if it should so happen that cicatrization be fairly completed, they undergo the misery of a similar disease in the opposite limb. The baneful effects of the exanthematous fevers, when they occur in scrofulous or phthisical habits, are most ably described by Andral, under the appellation of "maladies intercurrentes," and have not passed unnoticed by writers in our own country.

It is equally certain, however, that scarlatina, measles, hooping cough, &c. more especially the first of these, frequently give rise to the strumous diathesis. Oftentimes these maladies follow one another with surprising rapidity: for instance, I have known measles, scarlatina, and hooping cough, all occurring in the same individuals, in less than four months; and it rarely or ever happens that a patient so circumstanced does not become scrofulous at an after though distant period, unless great care has been bestowed on the general health during and for some time after these diseases. Of all the exanthemata, scarlatina, in my experience, is most productive of the phthisical diathesis. Dr. Graves has clearly shown that, during the fever, the liver is often in a state of active congestion*; this circumstance, too much disregarded or overlooked by the practitioner, is frequently the cause of subsequent mischief to the patient; if allowed to go unheeded, it soon passes into a chronic form, and thus arises that state of the organ so well described by Dr. Graves in a lecture delivered at the Louth and Meath Hospital, Dublin, when speaking of hypertrophy of the liver, induced by the abuse of mercury: his observations on the character of the evacuations are highly important. He says, "the cylinder of fæcal matter was composed of parts differing in colour and appearance; two or three inches consisted of pale clay-coloured substance; and immediately after this another portion of about the same length was observed, presenting the ordinary bilious or brown-coloured natural excrement; and then again another mass of clay-coloured matter, without any obvious trace of bile," &c. "This peculiarity is noticed in many diseases of the liver, and it is important to remark, in attempting to explain the rationale of these hepatic affections, that in no disease of the liver is this symptom more frequently observed than in the scrofulous." Again, he says, "you will frequently meet with this consecutive affection of the liver in cases of morbus coxæ, where the patient has been labouring for years under ulceration of the joint." In a passage preceding the last quotation, when speaking of scrofulous disease of the liver in children, after describing the state of the viscus itself, accompanied by a most accurate account of the general symptoms, he concludes by saying, "the little patient becomes what is termed pot-bellied, and labours under much debility and febrile excitement. This has been frequently called remittent fever, and disease of the mesenteric glands, but in my opinion unjustly." My own experience fully confirms the truth of these remarks, for it has frequently happened to me, when a patient has died under those symptoms which are said to characterize tabes mesenterica, to find, on examination, that the glands of the mesentery were comparatively free from disease, whilst the liver was invariably the seat of organic changes.

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* I have of late years been in the habit of applying leeches to the epigastrium during the early stages of scarlatina, with excellent effect.

From all that I have been able to deduce from my own observations, and from a careful examination of the opinions of others, it would appear that the tubercular diathesis arises under the following circumstances, which may be thus arranged:—

1st, As a consequence of the exanthematous fevers, and other infantile diseases, especially scarlatina.

2d, From want of proper and wholesome nutriment.

3d, From overfeeding.

4th, From hereditary predisposition; the latter class being small compared with the rest.

It is the opinion of many that unwholesome nutriment, confined and low situations, &c. are the chief sources of scrofulous disease; but this cannot be admitted if the scrofulous and phthisical diathesis are one and the same (of which there can be little doubt), phthisis being common to all classes of society. On a casual consideration of the subject, it would appear strange that two such opposite causes as the want of proper nutriment, and that of an overbundant supply of it, should give rise to a similar condition of the general system; yet, on a more attentive observation of them, it will be found that the circumstances of both are much the same. When a child is overfed, the digestive organs resist for a certain time its baneful influence, and it is, to all appearance, robust and healthy; but on a sudden, or by degrees, it becomes languid, loses flesh, the appetite fails or is capricious, febrile accessions take place at intervals, and, to the surprise and dismay of the parent, the once thriving and healthy offspring is now always more or less ailing. If, then, the patient be subjected to a careful examination, the abdomen will be found to be more or less tumid; the bowels inactive, or, perhaps, the reverse; motions clay-coloured, and varying from time to time in their nature and consistence. Here, then, is established the similitude of the two cases: the overfed child is starved by repletion, whilst the other is starved for want of nutriment, &c. In the former the digestive organs have been overtasked, and henceforth the process of nutrition becomes defective; the assimilative organs no longer possessing the power of converting the ingesta into nutriment sufficient for the supply of the system at large, the strumous diathesis ensues. Such cases pass daily under my observation, and must be familiar to most practitioners. It is a common circumstance for a mother to observe of her child that up to such and such a period it was strong and healthy, and to express herself totally unable to account for the change, little suspecting that, by overfeeding, she herself may have been instrumental in producing it. If any intercurrent malady supervenes at this time, the case is further complicated; and thus the deposition of tubercular matter in one or more structures of the frame may take place with great rapidity, giving rise to the various local phenomena observable among scrofulous individuals, such as phthisis, enlarged glands, spinal curvature, disease of the joints, &c., &c., external and accidental causes often determining the site of the disease. To follow out this part of my subject more fully, I may here observe that, in my early inquiries into the causes of the local maladies to be discussed hereafter, I was often told by the patients themselves, or their friends, that for some months or years, prior to the invasion of the symptoms, they had experienced a fall, a blow, a sprain, &c. and that they could only attribute their origin to such a cause. At first, I paid little or no attention to these accounts, considering that an injury so remote, and which only produced slight and temporary inconvenience at the time, could exercise no influence in producing them; but at length the frequency with which the patients referred to such a source of the local malady arrested my attention, more especially as accident in some cases was the obvious and immediate cause of the scrofulous affection of the parts, if the strumous diathesis existed at the time, or prior to the injury. On instituting further inquiry, I found that external violence, transient only in its effects, had a most marked influence in determining the disease of a part.*

The frequency of affections of the liver in phthisical cases has of late been the subject of much remark. Fatty degenerations of this viscus existed in one-third of the cases (40 out of 130) related by Louis.† He observes, "the fatty transformation of the liver was the most frequent, and, at the same time, most remarkable alteration of this organ." From this it would appear, that there were other alterations, which, however, he does not describe. The constant occurrence of disease of the liver in scrofulous subjects has long occupied my attention, and I have found that local depletion and counter-irritants in the vicinity of that organ are absolutely necessary in a vast majority of cases, before any hope could be entertained of subduing the local affection. The sudden amelioration that often follows the application of a few leeches to the epigastrium is surprising, and not easy of explanation. Of late years I have ceased to treat hæmoptysis by abstraction of blood from the arm, preferring the application of leeches to the epigastrium (increasing or diminishing the number according to the pain produced on pressure in the region of the liver), as a safer and far more effectual plan than that of general bleeding. Andral notices their effect in quelling hæmoptysis,‡ but assigns the relief obtained to a different cause; namely the gastric symptoms. He observes, "it is in cases of this description that one has seen the application of leeches to the epigastrium put an end to profuse hæmoptyses more surely and promptly than could have been effected by the opening of a vein." It seems somewhat strange that both he and Louis attribute the tenderness at the epigastrium to muco-gastritis; but it is quite certain that no part of the stomach presents in epigastrio, and whenever the liver is enlarged it extends over to the left hypochondrium, so that it is not very likely that the pain given on pressure should result from gastritis. And again, it is far more easily understood how relief may be obtained to the pulmonic symptoms by depletion from the liver, rather than from the stomach, when we consider the mutual dependence existing between the first mentioned organ and the lungs. I am quite aware that the affection of the liver in scrofulous individuals has not been regarded by some as inflammatory; but as merely functional. In the third volume of the Medical Cyclopædia I find the following observations. "The subsidiary organs of digestion and assimilation suffer also from scrofula; but the spleen and the pancreas are more frequently the seat of tubercles than the liver; yet the last mentioned of these organs is more or less functionally deranged in almost all strumous cases, which the chalky and various coloured motions of such patients sufficiently demonstrate." That the condition of the liver is essentially inflammatory in the earlier stages of strumous diseases I do not myself entertain the smallest doubt, the clay-coloured and variable state of the excrement being alone sufficient to demonstrate its existence; and under these circumstances, unless actual local depletion, repeated at intervals, be employed, we have no chance of restoring the hepatic secretions to their normal state. The pain given on pressure, in chronic congestion of the liver, is frequently by no means acute; but if we estimated the degree of mischief by that circumstance only, we should fall into a great error: it has often happened to me, whilst so examining patients, to find that they would scarcely admit of any pain resulting from the examination; yet, on a second visit, they would acknowledge that they had felt considerable uneasiness for some time afterwards. The case of Gardiner Stanley, æt. 23, admitted into the infirmary May 14th, 1835, may be cited among the many cases illustrative of this fact: he was suffering from scrofulous enlargement and ulceration of the left foot; the inguinal glands of the same side were enlarged and suppurating; the skin and surrounding parts were highly tense and painful, and contributed to form a tumor of very considerable size. On inquiring into the state of his health, he said it was, generally speaking, good, but he thought it had lately suffered from being too much confined to his desk (he was a lawyer's clerk). I made a careful examination of the abdominal and thoracic viscera; whilst examining the liver I observed him to shrink from my touch, but he did not admit that he felt any inconvenience at the time. On my visiting him the next morning he stated that he had felt a good deal of pain in epigastrio ever since. Eight leeches were applied the following evening in the hepatic region, and a pill of calomel and opium was ordered to be taken nightly. Upon seeing him the next day he said he was greatly relieved, the foot was much smaller, the ulcers bore a healthier aspect, and the tumor in the groin had entirely disappeared, the only trace left being two or three glands about the size of a small walnut, with two sinuses leading towards them. From this time the case continued to progress favourably, until he experienced an attack of rheumatic fever, from sleeping near an open window: the articulations of the knees, wrists, and ankles, were severely affected, and the right knee became the seat of a copious suppuration; his general health suffered greatly, and he returned home October 22d in a very debilitated condition. He came again to the infirmary in May 1837, apparently dying; for it seemed scarcely possible that he could survive the effects of his journey, such was the state of weakness to which he was reduced by it: he rallied, however, and continued to improve up to the time of his return home the October following. During the severe winter of 1837-38 he suffered from a renewed and severe attack of rheumatic fever: he lingered on from this time until June 20th, of the latter year, on which day he died. On a post-mortem inspection the liver was found to be enormously enlarged, weighing twelve pounds and three-quarters, as was likewise the spleen, which was slightly indurated; the thoracic and remaining abdominal viscera healthy.

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* It is well known that a sprain, or other injury, will determine gout to a part in a gouty subject; a blow on the head may, after years, give rise to cerebral disease. Cerebral affections, originating in this way, are ably described by my late and lamented friend, A. C. Hutchison, Esq. in his Surgical Observations.

† Vide Translation of his Work, p. 79.

‡ Vide pp. 83, 84, tome 4, Clin. Méd.

The case of Thomas Laws, æt. 35, admitted August 27th, 1835, was a remarkable instance of the success of the hepatic treatment. The general appearance of the patient was most striking: although only 35 years of age his hair was grey, and he had all the appearance of a man of 60, and but for his repeated assertions to the contrary, it would have been difficult to believe otherwise; his countenance was indicative of extreme suffering; he was greatly emaciated; both knees were in a state of contraction and enlargement from synovitis, and so painful that he could not bear the pressure of the bed-clothes; there was a tumor of some considerable size over the left tibia; he was labouring under constant cough, with copious bronchial expectorations; the abdomen was hard, unyielding, and very painful on pressure, especially at the flexures of the colon; the epigastrium was highly sensitive and acutely painful to the touch; bowels obstinately costive; great febrile action; profuse night sweats; he had been confined to his bed twelve months, and could only lie on his back. He had been ill altogether five years. By the occasional application of leeches and blisters in the region of the liver, combined with an alterative treatment of mercury, sarsaparilla, &c., and with careful attention to the bowels by aperients and enemata of warm water, he was sufficiently recovered at the end of about seven weeks to quit his bed, and though feeble could walk with the aid of crutches; the tumor over the tibia was fast suppurating: he left the infirmary, October 13th. He returned as an out-door patient, May 19th, 1836: his appearance at this time was wonderfully altered for the better: he informed me that the abscess over the tibia had not broken, but had been absorbed; he could walk several miles without difficulty, and had experienced no return of the local disorder. His general health was, however, somewhat deranged, and a similar but less active treatment to that of 1835 was now pursued, and he left September 13th, perfectly recovered. The manner of examining the liver requires some attention; it is best done with the patient in the erect position, by placing the right hand on the loins of the left side for the purpose of support, whilst tolerably firm pressure should be made with the points of the fingers or thumb of the left hand on the pit of the stomach, a little to the right of the mesial line: in this way it is far easier to appreciate the degree of tenderness that may exist. It may seem unnecessary to dwell so particularly upon this point; nevertheless it is very important. Patients themselves are scarcely ever aware that any pain exists in the hepatic region, unless their attention is drawn to it by an examination so conducted. I shall only adduce two out of the numerous cases that have passed under my observation in support of this assertion. The first was that of an in-door patient, ad mitted at the infirmary in the year 1832: he was suffering from hydrops articuli of the right knee joint; the capsular ligament was greatly distended with what seemed to be a thin fluid, for, when under examination, it gave the sensation of a bladder filled with water, the parietes scarcely feeling thicker than that membrane in a state of distension; he walked with great difficulty by the aid of a stick. During a period of six weeks, a variety of remedies were employed, counter-irritants, such as blisters, tartar emetic ointments, &c.; subsequently warm salt water bathing, the douche bath, warm and cold, the iodine preparations* in the form of lotions, the ointments of iodide of lead and mercury; alteratives were exhibited, iodine, sarsaparilla, &c., but all without producing the slighest amelioration in the symptoms. Being dissatisfied with the slight progress he had made, I determined to investigate more carefully the state of his general health, which he constantly affirmed to be excellent. Accordingly at a subsequent visit I found the pulse rather quicker than natural, and slightly jerking; his tongue very far back was covered with a thick fur of a dirty buff colour; the alvine excretions were rather dark coloured, but not deficient in quantity. I now determined to examine the liver; the pressure exerted in so doing was not great, but he started back and insisted that he had been used very roughly, and complained of great pain. This determined the subsequent treatment; eight leeches were applied to the epigastrium, followed by a blister; a pill of calomel and opium was ordered every night at bed time, followed by an occasional saline aperient in the morning. The patient declared himself averse to the treatment, and insisted that he was quite well; nevertheless he submitted to it. The next morning I found the capsular ligament was much less distended; he expressed himself greatly relieved. In the course of a fortnight the fluid was entirely absorbed, and he left the infirmary at the end of that time perfectly recovered. In the summer of 1835 I was consulted by an intimate friend about his son, a youth of sixteen or seventeen years of age, on account of slight enlargement of the cervical glands, which he said were occasionally painful. Upon examination I found several of them on either side of the neck enlarged to about the size of a pigeon's egg. On questioning him as to the state of his health, he said that it was excellent. Notwithstanding I found the pulse small, and ranging from 80 to 90 beats in a minute; the tongue was slightly furred at the back. On making pressure in the hepatic region he shrunk from the touch, but insisted that it did not give him pain; on repeating it he suddenly turned very sick, and fainted. I advised a similar local treatment as in the former case, and prescribed an alterative course of medicine: the glandular swellings were immediately relieved. The further treatment, however, was not persevered in, as he persisted that he was quite well. He died of phthisis about eighteen months since.

It may seem that I have laid too much stress upon the hepatic symptoms; yet if it be acknowledged that the liver is congested during scarlatina (as pointed out by Dr. Graves), and that scrofulous cachexia does frequently ensue as a consequence of this fever, surely its importance as an exciting cause cannot be overlooked. The clear and minute account afforded by Louis of the organic changes which take place in the digestive organs of those who die of phthisis, can leave no reasonable doubt on the minds of any one as to the vast importance of constant attention to the state of them when treating such cases. Finally, it seems to me highly probable, that a deranged state of the digestive functions must, in all cases, precede the deposition of tubercular matter, in whatever structure of the body it may be localized. Whenever we are called upon to treat tuberculous affections, we must regard them as the termination of a disease, and not as its commencement; for all the phenomena which follow are only so many means adopted by nature to rid the system of a foreign body. That tuberculous matter may be deposited in almost every part of the human frame is sufficiently demonstrated, and that wherever loose tissue exists there will it be found in the greatest abundance; accordingly the lungs are ever the most frequent seat of it. Much more might be said on this highly interesting subject, but, as I have already stated, I do not intend to pursue it further than is necessary to my present subject, I shall conclude by observing, that the circumstances which give rise to scrofulous diseases are seldom if ever apparent to the patients themselves, or to those who have charge of them; and that we are rarely called upon to treat them, until evidence is given of their existence through the medium of one or more of the various local affections to which they give rise. The slight constitutional disturbance accompanying many strumous cases has often been the source of comment, but it is far more serious than is generally imagined. As children are more affected with tubercles than adults, we should never omit to impress on the minds of those who have charge of them the great necessity of attention to the excretions. It might excite the incredulity of some persons to be told, that clay-coloured evacuations alone were sufficient to indicate the presence of the tuberculous diathesis, yet nevertheless such is the fact. I shall now pass on to the consideration of the symptoms of hip disease.

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* I beg leave to correct an error in my former paper: it was in the year 1832 and not 1833, that the iodine treatment was introduced by Dr. Canham.

[To be continued.]

DEATH AFTER NATURAL LABOUR.

To the Editor of the Medical Gazette.

SIR,

IF you think the enclosed case likely to interest any of your readers, you will oblige me by its insertion.—I am, sir,

Your obedient servant,

JOHN CHATTO.

23, Great Coram Street,
Feb. 13, 1841.

A. B., æt. about 25. This patient's health was formerly very good, but, during the latter period of her pregnancy it became much shattered by a severe attack of rheumatism, and poignant mental distress, occasioned by the misconduct of her husband. I saw her a few weeks prior to her confinement, when there only remained, of the rheumatism, a stiffness of one of the wrists, and great debility, attributed by her, in a great measure, to the severe antiphlogistic treatment to which she had been subjected. However, as her time approached, by the aid of tonics, she got much better, although always very "nervous."

I was summoned to her on account of her labour on the 27th of November; and found her suffering pain of a rather peculiar kind. At intervals she was seized with a violent pang, referred to the lowest part of the spine, and accompanied with a temporary but most severe dyspnœa. When this passed off she felt very feeble; but her pulse was by no means low: she also vomited frequently in a distressing manner. Circumstances prevented me making an examination per vaginam at that period; and, prescribing an anodyne in an effervescing draught, I left her. In a few hours I was again sent for, when I found the above suffering replaced by true labour pains, and good dilatation of the os uteri, the liq. amnii being already discharged. The pains continued vigorous, she (to use the old woman's phrase) "bore" them well, and the labour was completed in an hour. The placenta was detached by the same pain which terminated the delivery of the child, and was at once removed; the uterine contraction was good. In the intervals of the pains she complained urgently of feeling so very weak and feeble; although neither her pulse nor voluntary exertions indicated a state of debility.

After the birth of the child she exclaimed, with marked fervency, "May God be praised!" and soon after sank into a listless state, her face resembling that of one exhausted, and her respiration being much hurried. Her pulse, however, though quick, possessed some power, and the contraction of the uterus continued good. A bandage was applied firmly, and some brandy and laudanum were administered. I waited with her two or three hours longer, until she had considerably rallied, when, having ascertained that no flooding had occurred, and the uterine contraction continued firm, I left her. I was, however, in two hours after again called to her, her friends supposing that she was on the point of death. I found her in the same position on the bed I had left her in, almost pulseless, and, indeed, manifesting every symptom of the extremest prostration. This state I learned came on shortly after I quitted the house. I at once suspected uterine hæmorrhage, and was surprised to find that no more than the usual discharge had occurred, and that the contraction of the uterus continued complete. Stimuli were very freely administered, and I availed myself of the benefit of Dr. Lee's advice. A slight degree of rallying took place, but this was soon followed by a relapse, and she died about eighteen hours after delivery.

Her body was examined by Dr. Lee and myself next day, when all the viscera were found quite healthy, and no cause of death could be discovered. The uterus was well contracted, and quite healthy, containing a large coagulum in its cavity.

I attribute this catastrophe chiefly to the almost heart-broken state in which the patient passed the latter period of her pregnancy; as her physical debility prior to labour was by no means excessive (it is well known how favourably women often go through the process even when exhausted by long-standing disease), nor her sufferings during it prolonged.

EXTENSIVE ABSCESS

SITUATED BETWEEN THE CRICO- AND THYRO-ARYTENOIDEI MUSCLES AND THE LINING MUCOUS MEMBRANE.

To the Editor of the Medical Gazette.

SIR,

THE case enclosed presents some interesting points in its pathology and diagnosis: should it appear to you worthy of a place in your valuable journal, you will oblige me by inserting it.—I am, sir,

Your obedient servant,
SAMUEL B. COWAN, M.R.C.S.

Harrow, Feb. 16, 1841.

Josiah Adams, æt. 19, a labourer, of a sanguineous temperament, temperate habits, having enjoyed generally a good state of health, came under my care November 30th, 1840, labouring under symptoms of continued fever.

The attack, at first sthenic in its character, soon assumed the typhoid type, induced chiefly by copious and repeated bleedings from the left nostril, which for two days continued in spite of remedies, and could only be restrained at last by plugging the posterior nares.

The whole course of the attack was attended by slight pectoral symptoms, and partial loss of voice, which his friends have since told me existed some months previously, but which I then attributed to a congested condition of the pulmonary mucous membrane, so common in these cases. I cannot ascertain if he ever had syphilis.

He gradually recovered from the more severe symptoms, daily acquiring flesh and strength under a tonic regimen; and up to January 27th continued in a course of steady and progressive improvement.

27th.—This afternoon he was very much frightened by a cat, which flew at him, but did not bite him, and which, in his extremely debilitated state, caused great agitation and excitement; at the same time inducing considerable exertion of the voice in calling loudly for help. He did not recover the fright for some hours, and during this time, his wife told me, the respiration continued hurried, irregular, inspiration being attended by a great effort and a shrill croupy sound; expiration more free, but accompanied at intervals by a dry, short, hoarse cough, which she likened to the barking of a dog. I was not sent for until the next morning.

28th.—I found him this morning looking extremely anxious, nostrils dilated, shoulders elevated, respiration hurried; irregular spasmodic inspiration, attended by a crowing croupy sound; expiration short, and frequently interrupted by a hoarse barking noise. Voice husky, thick, weak; expectoration copious, very viscid. There is no apparent swelling or local pain about the larynx. Tongue coated; pulse very irregular, varying from 90 to 120, extremely soft and compressible.

℞ Emplast. Lyttæ gutturi applic.
℞ Hydrarg. Chloridi; Sacchari, aa. gr. ij. ft. pulv. 3tia quaque hora sumend. An emetic of Ipecac. immediately. Hot pediluvia.

29th.—He found great relief from the emetic bringing up a quantity of viscid mucus; no appearance of a false membrane. The crowing still continues, with the peculiar cough; the symptoms improved towards evening, there being distinct intervals of aggravation.

Continues the remedies as before, and was ordered an embrocation of croton oil to the larynx.

30th.—Says he is better. Croupy symptoms continue; expectoration thinner, less copious; symptoms increased towards evening.

31st.—Passed a better night; voice weaker; restlessness; anxiety; countenance duller.

Continues his remedies; mouth not sore.

Feb. 1st. — Symptoms unchanged; pulse quicker, 130, extremely compressible; complains of slight dysphagia; restlessness and anxiety continue, increased towards evening.

2d.—Passed a bad night; respiration attended by increased effort; croupy symptoms continue unchanged.

3d.—All the symptoms continue much the same; countenance duller; complains of drowsiness; strength much impaired. He was ordered to continue his remedies, with the addition of an antispasmodic mixture every six hours. Contrary to orders he eat a hearty dinner of meat, and died suddenly in raising himself in bed about an hour afterwards.

I was not sent for until more than half an hour afterwards, when I found life quite extinct.

Sectio cadaveris thirty-eight hours after death.—Externally, very slight if any swelling about the larynx; parts around the base of the tongue tumefied; papillæ at the base of the tongue very much enlarged. On removing the larynx and trachea, together with the œsophagus, and slitting it up posteriorly, the lining membrane of the trachea was found more than usually vascular, being œdematous towards its upper part; free mucus on its surface: no appearance of fibrinous deposit. On cutting through the cricoid cartilage, about three drachms of greenish yellow, apparently healthy, pus escaped, exposing an extensive abscess, whose centre had been cut through, situated between the crico- and thyro-arytenoidei muscles and the lining mucous membrane. Walls of the abscess thickened; cartilaginous in parts. The whole of the central posterior part of the cricoid cartilage was absorbed; the edges of the cartilage being seen on the left side in the centre of the abscess rough and irregular. Rima glottidis extremely small, not admitting a crow's quill; mucous membrane thickened, œdematous, corrugated, more than usually vascular. Corda vocales scarcely perceptible; ventricles of the larynx obliterated from the œdema. Glottis erect; mucous membrane somewhat thickened, vascular; œdematous at its base; œsophagus contracted immediately behind the abscess.

From the history of this case, and the sudden appearance of the more severe symptoms, we confess we found great difficulty at the time in arriving at any satisfactory diagnosis. The disease was evidently in the larynx; but its exact nature appeared extremely doubtful, from the sudden accession of symptoms, and the evident increase and decrease in the severity of the dyspnœa; the expectoration at the same time giving evidence of a certain degree of inflammatory action. From his extremely debilitated condition, state of the pulse, &c. we refrained from either general or local bleeding, and put him on the treatment of chronic laryngitis, for want of a better conception of his case. Had we been summoned sooner at the last, we should have opened the trachea, which we did not feel justified in doing in the previous stages, and in this way prolonged life; whether permanently or not, it is difficult to say.

DAMAGED TEA.

To the Editor of the Medical Gazette.

Sir,

I was last night at the house of a highly respectable tea-dealer, who shewed me a sample of the damaged tea from the ship "Westminster;" which, as is well known, after having been sunk in the sea, has been washed, kiln-dried, and offered for sale. The tea is of a dirty black colour, with specks of white or grey; it is soft, flexible, and dampish; not dry and crisp like good tea, and it has a faint sickly odour. The infusion has a nauseous smell, very much like that of senna; it has not the least vestige of the aromatic flavour of good tea, but tastes faint, sickly, and somewhat saline and styptic, with a trace of putridity: in fact, just as one may imagine that half-decayed sea weed would taste.

Of course no one would drink such detestable stuff to gratify the palate. But as some very economical people might think its cheapness more than a compensation for its bad taste, it may be as well to hint to the public that decomposing vegetable matter is, in several forms, exceedingly noxious, and that this damaged tea cannot fail to be unwholesome.—I am, sir,

Your obedient servant,
Robert Druitt.

6, Bruton Street, Feb. 12, 1840.

MEDICAL GAZETTE.

Friday, February 26, 1841.

> "Licet omnibus, licet etiam mihi, dignitatem *Artis Medicæ* tueri; potestas modo veniendi in publicum sit, dicendi periculum non recuso."
> Cicero.

PROPOSED ALTERATIONS IN THE UNIVERSITY OF CAMBRIDGE.

If practitioners of physic are to rank as professors of a liberal art—if their name is to conjure up all that science and literature have to bestow on human life—it is clear that whatever concerns general education touches us most nearly, and that we must look with the highest interest on every progressive step made by our great schools and universities. In this age of rapid change, however, quiet men may be excused, if not praised, should they feel something like alarm at the sweeping improvements which are proposed, and something like distrust of the persons who, too often, propose them. Disappointment has been known to call itself patriotism, and spleen would pass for justice. In proportion to the frequency of these natural alarms must be the gratification of every right-minded man, when he finds reforms reasonable in themselves proposed by one whose name renders eulogium superfluous, and who necessarily looks with affection on the time-hallowed institutions from which he borrowed the glory which he returns. Such is the case in a splendid instance now before us. Several important changes in the University of Cambridge are advocated by Dr. Peacock, the Dean of Ely, one who has been favourably known to every Cambridge man, we might add to every British mathematician, for the last quarter of a century. The work in which he has so ably set forth the grounds of these reforms is one which cannot avoid making a sensation in high places *. Dr. Peacock treats his subject with uncompromising firmness; and has the rare art of uniting arguments which must convince, with a delicacy which will necessarily please. In short, he mingles the useful and the sweet; and though we cannot suppose that he will carry off every vote, yet he will obtain a good many, and will, assuredly, gain his point at last; for truth is great, and shall prevail. We are now speaking of his proposal to abolish University oaths; as to the alterations which he proposes in the system of study, there is, of course, more room for difference of opinion; and we shall venture to record our dissent on certain points, though we are aware that, in disputing with the Dean of Ely on subjects of University education, we expose ourselves to have the adage ὗς Ἀθηνᾶν quoted against us.

Dr. Peacock commences his learned and entertaining essay with an account of the ancient and statutable constitution of the University, and the alterations which it has undergone. Such has been the change which has taken place both in manners and studies since the age of Elizabeth, that though the statutes which she imposed upon the University still remain unrepealed, scarce a vestige remains of them in practice. The undergraduates of those days went to the University at the age of fourteen or fifteen. The collegiate discipline was suited to their years, and the rod was the punishment of their offences up to eighteen. Two, three, or four, chummed in the same room; and even in Trinity College no one under the degree of doctor of divinity seems to have had a chamber to himself. Among other severities of that disciplinarian age, no student below the standard of a bachelor of arts of his second year was allowed to go into the town, unless accompanied by a master of arts; and the use of the English language among gownsmen was utterly prohibited. At five o'clock in the morning they assembled in the College Chapel for prayers; at six they proceeded to the Hall to perform the College exercises; at nine they went to the public schools of the University, either to hear the lectures of the professors, or to attend the disputations required for the degrees of bachelor and masters of arts. "They dined at eleven o'clock, and at one o'clock they returned to their attendance on the declamations and exercises of the masters and bachelors of arts. From three o'clock until six they were at liberty to pursue their amusements, or their private studies; at six o'clock they supped in the College-Hall, and immediately afterwards they retired to their chambers." (Peacock, p. 8).

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* Observations on the Statutes of the University of Cambridge. By George Peacock, D.D., V.P.R.S., &c., Dean of Ely.

The bachelors of arts were intended still to reside at the university; and the three years which elapsed before they were admitted to the degree of master of arts were to be devoted to the study of the Aristotelian philosophy, astronomy, cosmography, music, and Greek. They were likewise compelled to be present at all public disputations of masters of arts. They also had to make three responsions, in addition to two by way of practice, in *suo grege*, and a declamation. Every master of arts, on being created, was admitted to the *regency*, *i. e.* to the office of presiding over the disputations in the public schools, and this regency he was sworn to continue for five years. He was also to be a daily and diligent hearer of the lectures of the professors of theology and Hebrew, during the five years of his regency; and during this period was also to respond once (*i. e.* to maintain an argument against the objections of opponents), and twice to oppose a bachelor of divinity, "and after preaching once in Latin and once in English, at St. Mary's Church, and once likewise at St. Paul's Cross, he was, at the end of seven years, admitted bachelor of divinity." His labours, however, were not yet finished; for a similar course of studies and exercises was enjoined for five years more, at the end of which he was admitted a doctor in theology. The sum total was nineteen years of residence and study.

It is almost needless to dwell on the innumerable points of discipline and instruction which have gradually fallen into neglect, and almost into oblivion, since the days of Queen Bess. The name of Aristotle, which then swayed the schools with despotic authority, is now scarcely pronounced; and the scholastic logic, once thought the perfection of human wisdom, is now utterly forgotten. Nobody regrets this; no one would give up Newton for Aristotle, or Porson for "the grammatical institutions of Clenardus, Ceporinus, or Gaza;" every one has admired, and must admire, the University of Cambridge for the cautious zeal with which it has embraced every improvement in science, and every refinement of literature: yet still there remains one amendment to be adopted, which Dr. Peacock urges in the best possible tone, and in which every friend to the common-wealth will agree with him. The system of education is wholly different from that which is enjoined by the statutes: no one desires to see the practice brought back to the theory; then alter the theory to suit the practice—repeal the statutes. But this, it seems, cannot formally be done, at least with a great number of them. The code of statutes of the twelfth year of Elizabeth, as well as some other enactments, cannot be repealed by the authority of the senate alone; then let them be abrogated by Parliament, or by the Queen in Council, as may seem most expedient, and let others be substituted which are recommended by the actual practice of the University. The most painful point, however, concerning these statutes, both university and collegiate, is, that the custom of swearing to observe them is still continued. In two instances, indeed, Dr. Ainslie, the Master of Pembroke College, (honour be to his name!) has succeeded in converting the oaths into equivalent affirmations, under the authority of the Duke of Richmond's bill. These are, the matriculation oath, and the one on taking the degree of bachelor of arts; the others remain as they were. On these Dr. Peacock says—

> "We have now considered the principal oaths which are required upon admission to degrees and to the regency; and every person who deprecates the attestation of the name of God, and the appeal to his vengeance, except upon the most serious and most solemn occasions, when important obligations are about to be incurred, and most responsible duties are required to be performed, will agree in wishing for their abolition or amendment. For we have found that they relate to observances which have become obsolete or impossible; to statutes which, to a great degree at least, have ceased to be obeyed; to studies and exercises which have ceased to be followed or performed; to payments which have ceased to be paid; to official duties which have ceased to be discharged; to continued residences within the University which have ceased to be demanded: whilst the few fragments of the real obligations which they impose are not generally of such a character as would appear to require the security of so solemn an act."

Mr. Tyler, whose treatise on oaths is quoted by the Dean of Ely, wishes for an entire abolition of the oaths administered by the University of Oxford. Dr. Peacock would seem to wish to retain the oaths taken by masters and fellows of colleges, after the statutes which they promise to obey have been reformed*; but we confess that we do not agree with him.

The oaths of admission to degrees and creation have a *cautela* attached to them, by which the University declares that those who break the statutes, but submit to the consequent punishments, are not guilty of perjury; and the juror always takes the oath *secundum tenorem senatus-consulti in cautelam jurantium facti.*

This *cautela* was framed in 1647, when the ruling party saw the danger of the oaths, but had not boldness enough to throw them overboard altogether: let us hope that the higher tone of the religious and moral feeling of this age may enable the present reform to be a thorough one†!

It is clear that sooner or later this improvement must come: we could wish it to be immediate. In considering the subject of College statutes (as distinct from University ones) Dr. Peacock comments on the restrictions to be found in the statutes of several Colleges relating to the counties in which fellows are born. In the fifteenth, and beginning of the sixteenth century, party feuds ran so high, and the factions of the *Boreales* and *Australes* fought so internecine a war, that it was thought necessary to enact in the Colleges founded at that period, that not more than two fellows should be elected from the same county; or, in other instances, that natives of counties north and south of the Trent should be elected alternately. Should such statutes be retained? The Dean of Ely answers this question by an able distinction. The statutes of a College are often of two kinds; some being adopted from the laws of more ancient bodies, while others are the founder's own. The former may be considered as more especially characteristic of local and temporary circumstances; the latter, of the original and independent design of the founder. Now, when circumstances have entirely changed, when Cistrentani and Transtrentani live in peace and amity, the statutes which were merely based on their feuds may be repealed without violating the founder's will; but there are many instances of the limitation of fellowships to peculiar counties, or schools, where this rule does not apply, and where the preference evidently proceeded from some partiality of the founder; and in these cases the founder's wishes are to be respected, "even though by so doing we may not always consult the highest interests of the society to which such restrictions apply." Surely, this is carrying conservatism too far. All other entails can be broken, and why not these? If the possessor of an estate and his heir-at-law can disturb the course of succession intended by their ancestors, why should the will of some benefactor of the fifteenth century give an eternal and irrevocable preference to the minor merit of one county over the major merit of another? What the Dean says in another place of the inexpediency of unchangeable laws, holds good of legacies of unchangeable application; and the supreme power in the state can never have its hands tied by laws passed in the days of the Henries and the Edwards. The University of Cambridge, however, on this as on other points, has set an excellent example; and the principal Colleges have thrown open their fellowships without distinction of counties.

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* Op. cit. p. 92-3.

† This *cautela*, we believe, is not annexed to Collegiate oaths, nor, indeed, to all University ones.

SIR ASTLEY COOPER.

We understand that Sir Astley has left his books and preparations, together with a small sum of money (£2000), to Mr. Bransby Cooper. He has also bequeathed £4000 for the purpose of founding an annual prize, to be competed for by the medical pupils of Guy's Hospital. The bulk of his fortune goes with the title.

A meeting is to take place on Thursday, March 4th, at 8 P.M., in the Freemasons' Tavern, "for the purpose of considering the propriety of raising a fund by subscription for the erection of a monument to the memory of this distinguished surgeon;" Mr. Travers to take the chair.

REPORT OF THE CASES

TREATED AT THE

ARDWICK AND ANCOATS DISPENSARY, MANCHESTER,

From the 30th of April, 1839, to the 1st of May, 1840.

By Richard Baron Howard, M.D.
Physician to the Institution.

This dispensary, at which nearly 4000 patients are admitted annually, is situated in one of the poorest districts in Manchester. The persons to whom it affords relief are, for the most part, employed in the various branches of the cotton manufacture, and may, therefore, serve to afford some indication of the diseases most prevalent amongst this class of operatives. The majority of the patients are in a state of great indigence and destitution; they seldom have a regular adequate supply of wholesome food; are insufficiently clothed, and, from the nature of their employments, are often exposed to great and sudden variations of temperature. They reside in densely populated, filthy, and confined localities; their dwellings are damp, dilapidated, scantily furnished, and extremely comfortless—many of them cellars of the worst description—where they herd together in almost incredible numbers, without the least regard to order, cleanliness, or ventilation. Intemperance is very prevalent amongst them, and to this vice many of their diseases, and much of their poverty, is undoubtedly attributable; though it has probably been too much the custom of late to ascribe their distressed condition too indiscriminately to this cause, whereas it has appeared to me to arise more generally from their frequent want of employment, and inability to work in consequence of bad health.

In a population suffering from so many causes of physical depression, it is not surprising that there always exists a large amount of disease, or that their complaints are generally of an asthenic type, and little under the control of medicines, or such other remedies as a physician to a dispensary has within his reach.

In the following report (which merely comprises the cases under the care of one of the physicians) the diseases have been classified, with few exceptions, according to the arrangement proposed by Mr. Farr. It is not professed that the name of the disease assigned to each case has always been strictly correct;—such accuracy, in the present state of medical science, is impossible, and least of all is it attainable in dispensary practice. The irregular attendance of the patients, and the difficulty of obtaining post-mortem examinations, are here great obstacles. In the more trivial cases, it often happens that after two or three attendances the patient gets well and resumes his work, without ever taking the trouble of returning to be regularly discharged, and the physician has then no opportunity of confirming or correcting his first diagnosis. In the chronic or incurable cases, again, the patient not unfrequently becomes dissatisfied with his slow progress, and if there is a choice of charities, perhaps applies to another for advice, or more probably places himself under the care of a quack, who generally contrives, by a system of artifice or deception, to delude the poor sufferer into a belief of his power to cure his disease, until he has robbed him of his last penny.

When, from peculiar obscurity, there was a difficulty in referring the case to any strictly idiopathic affection, the most urgent symptom was assumed to be the disease, and has been registered as such in the table.

Yet, even with the liability to error from all these sources, such reports, if sufficiently numerous, cannot fail to afford useful statistical data.

CLASSIFICATION OF THE CASES.

Epidemic and Contagious Diseases.

Fever	80
Infantile remittent fever	10
Variola	7
Rubeola	14
Scarlatina	40
Anasarca following scarlatina	20
Pertussis	9
Catarrhus epidemicus	7
	187

Diseases of the Brain and Nervous System.

Hydrocephalus	3
Apoplexia	2
Hemiplegia	7
Paraplegia	1
Paralysis partialis	1
Anæsthesia	1
Epilepsia	7
Ramollissement cerebri	1
Convulsions	1
Cephalalgia	12
Vertigo	5
Chorea	2
Tic douloureux	1
Ophthalmia	3
Deafness	1
Hysteria	7
Hypochondriasis	3
Sciatica	2
Curvature of spine	2
	62

Diseases of the Organs of Respiration and of the Heart.

Cynanche trachealis	1
Bronchitis and chronic cough	126
Catarrhus	14
Pneumonia	12
Phthisis	53
Asthma	13
Hæmoptysis	8
Pleuritis	15
Hydrothorax	6
Empyema	1
Pleurodynia	8
Pericarditis	2
Morbus cordis	14
	273

Diseases of the Organs of Digestion.

Caries ossis palati	1
Odontalgia	2
Ulceration of gums	1
Dentition	6
Cancrum oris	1
Cynanche parotidæa	3
Cynanche tonsillaris	12
Stricture of œsophagus	1
Gastritis	1
Dyspepsia	42
Gastrodynia	12
Cardialgia	1
Pyrosis	2
Vomiting	2
Gastric irritation	6
Scirrhus pylori	1
Hæmatemesis	3
Gastro-enteritis	4

Intestinal irritation	2
Diarrhœa	29
Dysenteria	10
Obstipatio	28
Colica	2
Enteralgia	5
Cholera	2
Verminatio	2
Tabes mesenterica	3
Peritonitis	3
Ascites	1
Hæmorrhois	4
Hepatitis	3
Morbus hepatitis	4
Icterus	1
	200

Diseases of the Generative and Urinary Organs.

Syphilis	4
Gonorrhœa	2
Inflammation of vagina	1
Cystitis	2
Irritatio vesicæ	3
Eneuresis	1
Orchitis	1
Diabetes	1
Amenorrhœa	12
Dysmenorrhœa	1
Menorrhagia	10
Leucorrhœa	9
Abortus	4
Prolapsus uteri	1
Scirrhus uteri	1
Morbus ovarii	1
	54

Diseases of the Skin and Cellular Tissue.

Strophulus	3
Lichen	4
Prurigo senilis	1
Psoriasis	1
Herpes	3
Herpes zoster	2
Scabies	13
Tinea capitis	1
Porrigo	5
Erysipelas	6
Phlegmon	1
Anasarca	14
Œdema pedum	4
	58

Other Diseases.

Scrofula	3
Rheumatismus	59
Chlorosis	6
Undue lactation	3
Deficiency of food	6
Intemperance	2
Old Age	1
	80

Total number of patients, 914.

The cases of *fever* were generally of a mild character, and not marked by any peculiarity requiring particular comment. The disease prevailed chiefly in the most confined and filthiest parts of the district, especially in close courts and cellars, where great numbers were crowded together, and amongst the poorest and most destitute portion of the inhabitants. It was often distinctly traceable to contagion, and the occurrence of more than one case in the same house was very frequent.

Among the diseases of the epidemic class, the circumstance most worthy of notice was the great prevalence of *scarlatina*. I attended, altogether, sixty cases. Forty of these were admitted during the febrile stage, and twenty at a subsequent period, after the supervention of dropsy. Of the whole number, nine proved fatal, and fifty-one recovered.

The greatest variety prevailed in regard to the type of the disease: in many instances it was extremely mild; in others it was of a very malignant character, proving rapidly fatal; and I had frequently occasion to remark, that when one child in a family suffered from the complaint in the latter form, the others who were attacked had it severely also. This was not without exceptions, though the fact was usually as I have stated. In those cases where death occurred early, there were generally great swelling and inflammation of the parotid and submaxillary glands, which appeared, in many instances, to be the immediate cause of the fatal termination. Extensive sloughing of the throat was not so frequent an occurrence as I have known it in some other epidemics. In infancy the proportion of deaths was very large, and the younger the child the less was the chance of recovery. The period at which the eruption showed itself, its duration, and its shade of colour, were extremely various; and its recession and reappearance in the course of the disease were by no means uncommon.

The most remarkable feature, however, in the history of the epidemic, was the singular frequency with which the disease was followed by dropsy. In no other epidemic of scarlatina have I witnessed so uniform a tendency to this formidable sequela of the complaint.

Nothing could be more uncertain than the period at which this symptom came on. In some instances its existence was perceptible almost immediately after the decline of the efflorescence, and in one case there was an interval of six months; but the most usual time of its appearance was from ten or twelve days to three weeks after the commencement of the fever.

The œdema usually first shewed itself in the face, then in the inferior extremities, and, if not arrested by remedies, gradually extended over the whole body. In severe cases, the general anasarca was followed by effusion into the serous cavities of the head, chest, or abdomen.

The urine, very scanty in quantity, resembled dirty water, or an infusion of coffee, in appearance, and was often as dark coloured as porter. In every instance in which I tested it, traces of albumen were exhibited on the application of heat or the bichloride of mercury, though sometimes only slightly so. The tongue was generally white, and the pulse quickened, but there was seldom much febrile disturbance; and, indeed, I have often been surprised at the remarkable absence of any particular feeling of indisposition on the part of the patients, who were not uncommonly inclined to play about and continue their juvenile amusements as usual. The appetite was often good, and sometimes positively voracious, during the whole course of this secondary disease. Frequently no great uneasiness or distress was experienced until the effusion in the chest became so copious as to interfere with the function of respiration. In some of the aggravated cases, where hydrocephalus threatened, obstinate vomiting was present, and constituted a formidable obstacle to the internal administration of remedies.

The rapidity with which this dropsical effusion occasionally accumulates, and the suddenness with which fatal symptoms sometimes supervene, when the patient appears to be going on well, requires especial attention, and points out the necessity of caution in giving a prognosis.

I have known more than one instance where a child, apparently in no danger, was seized without warning with convulsions, and died in a few minutes, in consequence of effusion within the head; and I have witnessed death produced under similar circumstances by rapid and unexpected effusion in the chest.

A favourable prognosis can never with safety be given until the secretion from the kidneys has been restored and become natural in appearance. As long as the scantiness and high colour of the urine continue, the case must be considered one of danger, even though all the other symptoms are improving. By the action of purgatives or of vomiting, or from some less obvious cause, the anasarca is often temporarily diminished; but, unless the urinary secretion be at the same time re-established, the disease always returns, or the patient often becomes suddenly and alarmingly worse. Relapses, indeed, were very frequent among the dispensary patients.

The severity of the original disease certainly did not increase the tendency to dropsy; on the contrary, it was, according to my observations, decidedly more frequent after mild than severe cases. In some instances (where anasarca followed) the eruptive stage was so slight as scarcely to attract the notice of the child's attendants; and presumptive evidence of its general mildness exists in the simple fact, that, in twenty of the cases, medical aid was not sought until the dropsy had supervened. Neither did a state of debility appear to predispose to it, for its occurrence was not more common in children who were much reduced, than in those who were robust.

The cause which above all others seemed to be most powerful in giving rise to this formidable sequela of scarlatina, was exposure to cold; and in this fact we have a ready explanation of its greater frequency after mild than severe attacks. In the former (in consequence of the trifling feeling of indisposition remaining, and the apparent little necessity for precaution), the children, of the lower orders at least, are generally allowed to go out of doors immediately on the subsidence of the fever; whereas, the debilitated state of children who have suffered from the disease in a severer form, compels them to remain in bed, or, at any rate, confines them to the house for a considerable time; and to this circumstance I cannot doubt that their comparative exemption from dropsy is attributable.

The extremely cold weather, and particularly the chilling easterly winds which prevailed for a long period in the spring, when scarlatina was rife, appeared to be particularly active as an exciting cause of the anasarca. The frequent occurrence of other cases of acute dropsy at this time, where no predisposition to the disease had been acquired by an attack of scarlatina, indicated something in the state of the weather peculiarly favourable to its development. One of the cases of measles under my care was followed by anasarca; an occurrence which, though rare, compared with its frequency after scarlatina, is mentioned as an occasional sequela by several authors.

With respect to the pathology of this species of dropsy, I think no doubt can be entertained as to the correctness of the generally received opinion, that it is of an active character, and not the consequence of debility. This is proved by many of the facts already stated, as well as by the success attending the employment of remedies of the antiphlogistic kind.

That disturbance in the functions of the skin should be a frequent consequence of an attack of scarlatina might naturally be expected. The weakened state of the cuticular capillaries (the effect of their previous inordinate action during the eruptive stage), and their unusually unprotected situation, arising from the loss of the cuticle by desquamation, render them peculiarly susceptible of external impressions; and any exposure to cold air at this time quickly checks the perspiration. In order to compensate for this suspended exhalation from the skin, and obviate the injurious effects of undue distension of the blood-vessels by its detention in the circulation, serum is effused into the cellular tissue, or the cavities lined with serous membranes. I am not inclined to consider the effusion as the result of inflammatory action: the absence of all febrile symptoms in many of the cases shows that this is not the case. The process appears to be merely the substitution of one kind of exhalation for another; the natural excretion from the skin being checked, the system relieves itself by establishing a vicarious one.

I have no doubt that the utility of venæsection arises from its effect in relieving internal congestion and augmenting the activity of absortion, by lessening the mass of blood, according to the well-known principle first propounded by Magendie. When ascites, hydrothorax, or hydrocephalus, takes place, there are no symptoms indicating inflammation of the peritoneum, pleura, or the meninges of the brain; nor has the fluid found in these cavities after death the appearance of inflammatory effusion. In the few cases in which I have had an opportunity of making post-mortem examinations, it was clear, and without any flakes of lymph. Neither did the serous membranes themselves exhibit any traces of inflammatory action. I have never observed any unusual appearance in the kidneys, further than slight congestion. It is important to bear in mind, however, that, in patients recovering from scarlatina, there is often a remarkable tendency to inflammatory attacks, and that these may, and often do, co-exist with dropsy.

In the *treatment* of this affection, by far the most efficacious remedies were the abstraction of blood, and purgatives. Except when an extremely enfeebled state of the circulation forbade it, bleeding was seldom omitted. The tender age of many of the patients of course precluded the adoption of general bleeding; but in plethoric children, about the age of five years, I never hesitated to order a few ounces of blood to be taken from the arm, and was seldom disappointed with the result. When either of the two circumstances just mentioned seemed to render the propriety of general bleeding questionable, leeches were often applied with great advantage. In this mode, blood may be extracted so slowly as to avoid any dangerous shock to the system, and yet so copiously as effectually to relieve the loaded circulation. It will be observed, that we take away blood in this disease with a very different view from that which influences us in inflammation; in the one case, our object is merely to reduce the volume of blood circulating in the vessels, in order to remove congestion, and increase the activity of absorption; whilst, in the other, our endeavour is to diminish the force of the heart's action; and it is generally important to effect this with as little loss of the vital fluid as possible.

The embarrassed state of the respiration, and evident congestion of the lungs, naturally point out the chest as the most eligible place to which to apply the leeches. If danger is threatened from cerebral symptoms, of course they will be more appropriately applied to the head.

Next to the abstraction of blood, *purgation* is the most efficient remedy in this species of dropsy. It is not sufficient merely to remove the constipation which may exist: in order to obtain the full benefit of this class of medicines, it is necessary to produce copious watery evacuations, and, for this purpose drastic, or what are called hydragogue cathartics, are required. That which I have chiefly used is jalap, in combination with calomel, or the bitartrate of potash. Elaterium proved very efficacious in the few cases in which I gave it, but the extreme youth of most of my patients prevented me from prescribing it frequently. When, from the tendency to vomiting which often existed, powders were rejected, I generally prescribed pills composed of calomel, compound extract of colocynth, and scammony; and these were often retained. In such embarrassing cases, enemata become a useful and necessary auxiliary.

Of *diuretics*, digitalis was the most beneficial. Colchicum was also certainly useful in several cases, sometimes acting on the bowels, and sometimes on the kidneys, and I am inclined to think will be found a remedy of considerable value in this disease; but caution and watching are necessary in exhibiting it to children.

Tonics did not appear to me to have any effect in removing the effusion, and were only useful in relieving the subsequent debility. There was good evidence in some instances of the utility of the warm bath.

I shall confine myself to a few very brief remarks respecting the remaining diseases.

The case of ramollissement cerebri occurred in a man 34 years of age. His symptoms, on admission, were pain in the loins and all his limbs, but especially severe in the former place. It was not until he had been nearly three weeks under treatment, and about a fortnight before his death, that any marked indication of cerebral disease manifested itself. At that time he began to complain of violent pain in the head also, was occasionally delirious, had some tetanic spasms of the extremities, and experienced much distress and difficulty in voiding his urine. On examination after death, the fornix thalami, and parts surrounding the lateral ventricles, were very greatly softened. In several points the cerebral substance was completely broken down, and reduced to a pulp, like thick cream.

The subject of tic douloureux was a delicate young woman, 23 years of age. Her disease, though severe, was not of long standing, and gave way to quinine, in combination with morphia, after iron had been tried without benefit.

Under the head of bronchitis and chronic cough, are comprehended several varieties of pulmonary disease — catarrhus senilis, chronic pneumonia, and probably some cases of incipient phthisis, in which the disease was not sufficiently far advanced to be detected either by the general symptoms or by the stethoscope. Many of the dispensary patients are spinners, cotton batters, or are employed in other manufacturing operations, by which the air is loaded with dust, and other irritating particles, and they are in consequence especially liable to diseases of the bronchial membrane.

The two cases of *vomiting* were somewhat singular. In neither patient could the symptoms be traced to any cognizable cause; there was no evidence of disease either in the stomach, head, or spine. Yet the vomiting recurred regularly after every meal. Both cases were extremely obstinate, but both ultimately recovered. One was cured by creosote, after a variety of remedies had been tried in vain.

The morbid symptoms referred to *undue lactation*, occurred in delicate women, who were harassed by long-continued toil or depressing anxieties, and had not a sufficient supply of wholesome nutritious food. Such persons often suffer at the same time from leucorrhœa, or have a continuance of the menstrual discharge whilst suckling: a combination of weakening actions which quickly produces an alarming degree of exhaustion. Though often aware themselves of the cause of their illness, they are generally reluctant to wean their children, from a fear they should sooner become pregnant again.

Though only three cases are registered as *scrofula*, it must not be inferred that this disease is rare amongst the dispensary patients. On the contrary, it is extremely common, and the seeming inconsistency arises from the cases being classified according to the organ particularly affected: as the lungs, mesenteric glands, &c. When the joints or external parts were the seats of the disease, the patients were placed under the surgeons' care. It was only where the system generally was affected, without localization of the disease in any particular organ, that the complaint was registered as scrofula.

A very erroneous inference would also be drawn, if it were supposed that only six instances of disease from deficiency of food occurred, as it was only where the unequivocal and direct effects of starvation were the sole symptoms, that the case was classed under this head. If an enumeration were made of all the patients, the origin of whose diseases could fairly and legitimately be traced to defective nutrition, the amount would be lamentably increased; and if to this number were added those whose illness was attributable to want of the other common necessaries of life, clothing, fuel, and shelter, the result would exhibit such a melancholy and astounding picture of the wretched and destitute condition of the labouring classes, that by those who had never investigated the subject its truth would not be credited.

The winter of 1839-40 was one of peculiar suffering and distress amongst the poor in this district, owing to the high price of provisions, and the scarcity of employment; and for not a small proportion of the cases admitted at the dispensary during that period, nutritious food, and not medicines, would have been the appropriate remedy.

ROYAL COLLEGE OF PHYSICIANS, EDINBURGH.

MEDICAL REFORM.

At a meeting of the Royal College of Physicians of Edinburgh, called to consider the Report of a Committee of their body, on the Bills for Medical Reform, which have been introduced into the House of Commons by Mr. Warburton and Mr. Hawes, the following Resolutions were unanimously adopted:—

1st. That the College derive much pleasure from finding that the subject of Medical Reform, which has so often been under their consideration, and in which they have repeatedly endeavoured to interest the legislature, has at last been brought, in a tangible form, under the notice of the House of Commons; and trust, that the full discussion which the subject has received, and is receiving, from the profession at large, and the attention now about to be bestowed on it by Parliament, will lead to the removal of some of the evils of which the College have frequently had occasion to complain.

2d. That, in the opinion of this College, the great evil arising from the want of an uniform system of medical legislation throughout the united kingdom, is the possession, by particular corporations, of local privileges, which render their Licentiates alone legally capable of acting as general practitioners in particular districts and portions of the country, to the exclusion of persons of equal, and it may even be, of superior qualifications.

3d. That, so far as the College is aware, the only plausible objection which has been urged against the abolition of these local privileges, and against the adoption of a system for placing the Licentiates of all the Medical Corporations on an equal footing in respect of the right of practice, is the inequality alleged to exist, or actually existing, in the amount of Medical Education required of candidates for their licenses by the several Boards, and in the degrees of strictness with which the examinations of such candidates are conducted.

4th. That whilst, therefore, with a view to the interests both of the public and the profession, community of privilege should, in the opinion of this College, be the primary object of any legislative enactment relative to the medical profession, sufficient education and examination must, at the same time, be duly provided for.

5th. That from the communications which have taken place, and the understanding that has been come to, between a number of the different Boards with which the superintendence of medical education at present rests, little difficulty can now exist in fixing a minimum course of study, general and professional, without evidence of having passed through which, no one should be allowed to present himself as a candidate for a medical license. On this point the College will only farther refer to the joint resolutions agreed on by the Medical Faculty of the University, and by the Royal Colleges of Physicians and Surgeons, of Edinburgh, of date October 1838.

6th. That to produce some approach to uniformity in the system on which the examinations of candidates for licenses are conducted by the several Boards, and to secure the public against the admission of incompetent persons into the medical profession, it appears to this College that it would be desirable that some superintending body should be constituted, having authority to take cognizance of the manner in which the duty of examination is executed.

7th. That the persons of whom this Board should consist might probably be most advantageously selected by the Crown from lists furnished by this and the other boards at present entrusted with the government of the medical profession.

8th. That, in the opinion of this College, no measure of medical reform will be satisfactory which does not confer on a person who has once received a certificate of his fitness to exercise the medical profession from any of the established Boards, the right of practising in any district of the country, or in any particular department of the profession, without the necessity of submitting himself to a second examination before another board.

9th. That whilst the College readily acknowledge that the proposal of creating a representative body or bodies, elected periodically by the profession at large, by which the affairs of the medical profession might be superinteded and directed—(a proposal which forms so prominent a feature in the two measures which have been submitted to Parliament)—is desired by many most respectable members of the profession, they are disposed to believe that this desire has in a great measure originated in accidental and removable causes; and they are satisfied that any attempt to carry it into effect would be attended with serious inconveniences, if not insuperable difficulties.

10th. That, in particular, the College conceive that this proposal has in a great measure grown out of the dissatisfaction very generally prevailing among the members of the medical profession, not only with the local privileges of practice attached to the licentiates of particular corporations, as already noticed, but also with the narrow and exclusive system on which admission into the governing body of some of the medical incorporations has hitherto been regulated; and that the adoption by, or enforcement on, these corporations of conditions of admission of a more reasonable and liberal character, in obtaining for them the confidence of their licentiates, would in a great measure supersede the desire at present existing for a representative system of superintendence.

11th. That among the obvious inconveniences with which the election of a representative body, by the medical profession at large, would be attended, the College conceive that it would have the effect of producing and continually renewing agitation and dissension among the members of the profession, and of directing their attention from far more important duties; whilst those who are best qualified for performing the duties that should be committed to a superintending body, would be least likely and least able to take those steps which are essential to the gaining of popular suffrages. And, as a farther objection to the Boards proposed, in the bills before Parliament, to be established for the regulation of the profession, it may be remarked, that, from the multifarious duties intended to be committed to their members, and the necessity which would be imposed upon them from time to time, of leaving their homes for execution of these duties, it would be impossible to obtain the services of persons of eminence and station in the profession; and that the appointments would therefore fall into the hands of an inferior grade of individuals, in whom neither the public nor the profession would have confidence.

12th. That whilst the College readily acknowledge that the actual constitution of some of the medical corporations in the united kingdom requires to be rendered more conformable to the spirit of the age, they are not disposed to admit that these institutions are so useless, or so incapable of amendment, as to make it advisable either to abolish them by direct, or to supersede them by indirect legislation, the acknowledged fact being that, notwithstanding any defects under which they may labour, the country is, through their agency, provided, at the present time, far beyond all precedent, with well-educated and judicious practitioners.

13th. That it would be desirable that the duty of examination should be remunerated in such a manner as to remove the possibility of a suspicion, that the examiners have a pecuniary interest in the number on whom they confer the license to practise.

14th. That, considering the large amount of services gratuitously rendered to the public by the medical profession, the very inadequate compensation received by a large proportion of its members for the long and expensive course of education necessary to qualify them to practise, and for the performance of its very laborious duties; and considering also the direct interest which the public has in being able easily to distinguish between qualified and unqualified practitioners of the healing art, the College are decidedly of opinion, that any additional expenses which might be occasioned by an improved system of medical legislation should be defrayed out of the public purse, and not by an annual tax upon the profession, as seems to be contemplated in the measures which have been submitted to Parliament.

15th. That the College consider that it would be highly desirable that a scheme should be arranged for the registration of licensed practitioners. That, in their opinion, none but registered practitioners should be legally eligible for any public professional situation; that the assumption of a professional designation by a person not entitled to it, should be declared an offence punishable at common law; and that the right of suing in Courts of law for professional remuneration should be secured to licensed, and denied to unlicensed practitioners. But, in recommending enactments to these effects, for the encouragement of the licensed, and the discouragement of the unlicensed, the College is convinced that the suppression of unlicensed practitioners is beyond the reach of legislative interference, so long as there exists a taste for this species of practice in the public mind.

Edinburgh, Feb. 12, 1841.

WINDOW TAX ON HOSPITALS.

To the Editor of the Medical Gazette.

SIR,

You will observe that the Commissioners of Taxes have declared, in the enclosed paper*, that work-houses are, in certain cases, discharged from window-duty, notwithstanding which I find they have declared, on the supposed authority of the Westminster Hospital, printed case No. 1154, that under similar circumstances to work-houses, hospitals are not exempt, although "hospitals" are expressly named in the very exemption clause alluded to.

I find that many hospitals are not charged with window duty at all. That other hospitals are charged for the rooms of officers and servants 1s. 9d. a window; others are charged on the scale of progressive duty, 2s. 1d. a window; others 5s. 2d. a window, 3s. 9d. a window, 2s. 10d. a window, and 6s. 2d. a window.

An order has been made by the House of Commons for a return of window duty charged on hospitals, and when that shall have been done, these and many more inconsistencies will appear officially. But, in the meantime, the governors of hospitals which are charged should give notice of appeal, as the current tax year will expire on the 5th April. See 48 Geo. III. c. 55, schedule A. Rule 8, and Exemption 2; 4 Geo. IV. cap. 2, sect. 2, and 3 Geo. IV. c. 7, sect. 1.

Observe, Rule 8 speaks of public hospitals ranging with universities, &c. (and meaning, I conceive, Haslar, Chelsea, Greenwich, and such like), but Exemption 2 speaks of hospitals (not using the word public) ranging with charity schools, &c. and meaning, as I conceive, such as are maintained by voluntary contribution. The attention of the judges not having been led to this distinction may have induced them to give an erroneous decision in the Westminster Hospital Case; and, at all events, I cannot discover how the windows in that case were reduced under the 4 Geo. IV. c. 11, to 1s. 9d. each window, without being wholly discharged by the 3 Geo. IV. cap. 7, sect. 1.

Should the windows of hospitals be charged at all?

I hope you will deem this information of sufficient value to be made public.

I am, sir,
Your obedient servant,
A GOVERNOR.

Feb. 23, 1841.

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* We have not thought it necessary to insert the paper alluded to.—ED. GAZ.

THE RIGHTS OF THE UNIVERSITY OF ABERDEEN.

To the Editor of the Medical Gazette.

SIR,

HAVING had my attention called by several professional friends to an attack on the University to which I have the honour to belong, I feel it my duty to request of you to give place to the following reply, which I enter upon with reluctance, but without humiliation, conscious as I am, although one of the accused, that whatever is disgraceful in this attack belongs only to the accuser. I could have wished that I had been in circumstances that, would enable me to refer to documents, and to particularize dates; yet I hope that no material inaccuracy will occur to affect the subject of discussion.

You have represented the University of Aberdeen as a College "empowered to confer degrees in Arts," but which "never received any shadow of authority to confer any degree except in Arts;" that in 1728, as, you say, "is believed," Marischal College "was pleased to confer on itself the power of conferring on others the degree of Doctor in theology, law, or medicine." Her degrees, you say, "are not degrees at all, and are worth no more than the parchment and wax of the diploma." You say, that "if Marischal College had created Baronets as well as Doctors," it would be "a step equally justified by their Charter;" and you conclude by alleging "that any ten gentlemen who choose to seat themselves round a table have exactly the same power. The College, then, in its new scale of fees, has unconsciously estimated its degrees at their real value—*nothing*."

In this manner, sir, have you selected a period when, if I remember well, the University of Aberdeen became illustrious in scientific history, as the place where Newton's Philosophy was taught first from the lips of Colin Maclaurin, as the earliest date of a fraud that has been continued for longer than a century.

You say, "we speak advisedly. We have now lying before us all the charters, acts, and muniments, of Marischal College, printed by the Royal Commissioners, for visiting the Scottish Universities." Therefore, sir, you cannot be ignorant that there have been several reports made by successive Commissions. These reports are very elaborate. A general report relating to *all* the Universities of Scotland was drawn up by some of the most eminent lawyers and clergymen in Scotland, in conjunction with several of the leading nobility of the country. Allow me, then, to ask, is there in that general report, or is there in any of the subsequent more special reports of other commissions to visit the *Universities* of Aberdeen, a single word stated by the Commissioners to indicate that they regarded the Marischal College and University as less a University than any of the others in Scotland? Pray, sir, do us the justice to make answer "advisedly."

I am no lawyer, sir, and therefore am ill qualified to do justice to a discussion of this kind; but I have had sufficient interest in the history of the University to which I have the honour to belong, to be able to state as much, in a plain way, as will enable your readers to appreciate the character of your attack.

Prior to the Reformation there were three Universities in Scotland—St. Andrew's, Glasgow, and Old Aberdeen. These, having been all founded by the Papal authority, and under the management of the bishops, became almost altogether extinct on the national change in religion, until the zeal of some of the distinguished reformers caused them to be remodelled, so as to be in accordance with the altered circumstances of the country. The modifications in question were all made by the sanction of the Scotch Estates in Parliament. About the same time two new Universities were instituted by Protestant enterprise; the University of Edinburgh, by King James, and the present University of Aberdeen, by the Earl Marischal. The charters of both Universities were confirmed by parliamentary authority.

Under the poverty and in the distracted state of Scotland at the Reformation, extended Universities, such as exist in our own happier times, could not be looked for. Small schools of Arts made up the principal portion of every University in Scotland in those days; but, according to opportunity, some provision for theological education was also made by the reformers; and you are under a mistake when you say that in Marischal College no provision was made for theological instruction, for, from the first, nearly the same provision was made in Marischal College as was made in the Glasgow College in the University of that city.

In a national chartered institution, it is not at all unusual that, as occasions arise for its enlargement, the original Charters should be found narrow enough to give occasion to questions as to their interpretation under new circumstances. In the University of Aberdeen, there has to the present day, so far as I am aware, never been occasion to justify its rights to grant the degree of Doctor; but, incidentally, in the transactions of another University, these rights were brought under the review of the supreme Court of Appeal in the case of a disputed election to the office of professor.

The case happened about a hundred years

ago; and the particulars, so far as material to the present question, and as may be gathered from printed papers in the cause, are these:—To hold the office of Professor of Civil Law in the University of Old Aberdeen, it is necessary to be a Doctor of Laws. A certain candidate was elected to this office, being LL.D. in the Marischal University. His qualifications were disputed by an opposing candidate, who held the votes of a minority of the electors. I need not say, that, in such a case, it was no discredit to the University that an interested party chose to dispute its authority. The circumstance, however, caused the charters and the constitution of the University to be considered by the House of Lords, by whom, through Lord Chancellor Hardwicke, the case came to be decided, and the disputed qualification sustained. I am entitled to call your attention particularly to this decision. It was given within twenty years after the time when you say the University "conferred on itself" the power of granting the degree of Doctor; and, I can assure you, the rights of the University were vindicated, not from a reference to immemorial practice, but upon rights conferred by charter, and sanctioned by Parliament. "Advisedly" as you say you profess to have considered the same subject in a legal point of view, I may yet be permitted to remind you, that a decision of the House of Lords, undisputed for a century, constitutes what is regarded to be the law of Scotland. So undisputed, indeed, is this decision, that the present holder of the office alluded to, holds upon no other qualification than precisely the same degree, conferred by precisely the same University. It is remarkable enough that the office of principal of King's College, likewise in the University of Old Aberdeen, which can be held only by a Doctor of Divinity, is at present held by a Graduate of the Marischal University; and as to the degree of Doctor of Medicine, when the University of Old Aberdeen, for want of sufficient medical examiners in its own body, selected an extra University Examiner in Medicine, that University judiciously made choice of a well qualified gentleman whose only right to teach or practise medicine lies in his diploma of M.D. from the Marischal University.

It is little more than a year ago that Her Majesty was pleased to institute a Regius Professorship in Anatomy, and another in Surgery, in *her University of Aberdeen*. By a like authority a Professorship of Medicine was instituted more than a century ago. Sir, you say *it concerns the honour of the profession* to represent, as you have done, the gentlemen holding such offices and myself—fulfilling according to the best of our ability the high functions entrusted by the country to our charge—acting under the authority of ancient charters ratified by Parliament, and sanctioned by the decision of the highest court of law; members of a University, whose existence, in all its privileges, is guaranteed by the treaty of national union—as no better than a gang of impostors. Malign us as you may, and possibly you may succeed, in your "concern for the honour of the profession," to degrade us in the eyes of such as know us not; it is yet some consolation to think that the students, among whom we move—to whom our characters and principles are known—will look with scorn upon your attack upon our motives; and that these have not been mistaken, and have been appreciated by our fellow citizens, insomuch as to make it expedient for our traducers to seek an audience amongst strangers.—I have the honour to be, sir,

Your obedient servant,
Thomas Clark, M.D.
Professor of Chemistry, Marischal College, University of Aberdeen.

Tavistock Hotel, Covent Garden,
Feb. 23, 1841.

[The above was received as the sheet was passing the press, and we have no time to make any remark upon it, but if on reperusal it appear to require any answer, we shall give it next week.—Ed. Gaz.]

ELIXIR OF VITRIOL.

Among the relics of old pharmacy retained in the French Codex, is the preparation known by the several names of *Teinture aromatique*, *Elixir vitriolique de Mynsicht*, and *Tinctura aromatica sulphurica*. Lest any of our young readers should confound it with the aromatic spirit of ether of the Pharm. Lond., 1824, we will observe that the Parisian elixir is made without distillation. The French receipt is as follows:—

Take of the root of sweet flag, an ounce; galangale *(Galanga officinalis)*, an ounce; chamomile flowers, half an ounce; sage leaves, half an ounce; wormwood leaves (*Absinthium officinale*), half an ounce; curled-leaved mint (*Mentha crispa*), half an ounce; cloves, three drachms; cinnamon, three drachms; cubebs, three drachms; nutmegs, three drachms; ginger, three drachms; aloes wood (*Aloexylum agallochum*), one drachm; lemon peel, one drachm; white sugar, three ounces; alcohol, two pounds; sulphuric acid, four ounces.

The solid substances are to be reduced to a course powder, then put into a matras, and eight ounces of alcohol poured over them. After forty-eight hours' maceration, the sulphuric acid is to be gradually mixed with them, and the mixture is to stand for twenty-four hours; the rest of the alcohol is then to be added.

MONTHLY LIST
OF
DRUGS ON SALE IN THE ENGLISH MARKET,

With their Prices and several Duties.

(From the Official Returns, Feb. 16, 1841.*)*

	Price.		Duty and 5 per cent.	Duty Paid.	
	£ s. d.	£ s. d.	s. d.	In 1841, to last week.	Same time in 1840.
Aloes, Barbadoes, D.P. c	15 0 0	to 30 0 0	B P. lb 0 2 F. lb 0 8	21,126	12,153
Hepatic (dry) BD......... c	5 0 0	10 0 0			
Cape, BD. c	3 0 0	4 5 0			
Anise, Oil of, German, D.P.... lb	—	—	F. lb 1 4	188	—
E. I. ....lb	0 5 0	0 5 6	E. I. 1 4	255	254
Asafœtida, B.D. c	1 10 0	3 10 0	c 6 0	—	17
Balsam, Canada, D.P. ....lb	0 1 0	0 1 1	lb 0 1	423	1,756
Copaiba, BD. ....lb	0 1 10	0 1 4	c 4 0	111	78
Peru, BD. ....lb	0 4 6	—	lb 1 0	—	123
Benzoin (best) BD............... c	25 0 0	50 0 0	c 4 0	17	7
Camphor, unrefined, BD......... c	10 10 0	—	c 1 0	182	121
Cantharides, D.P. ....lb	0 3 3	—	lb 1 0	1,600	2,612
Caraway, Oil of, D.P. ....lb	0 9 0	—	lb 4 0	1,180	1,253
Cascarilla or Eleutheria Bark, D.P. c.	3 10 0	—	lb 0 1	8,362	807
Cassia, Oil of, BD...............lb	0 10 6	—	lb 1 4	2,903	3,185
Castor Oil, East India, BD.......lb	0 0 4	0 0 10	c 1 3	7,238	55,93
West I. (bottle) D.P. 1½lb	—	—	—		
Castoreum, American ....lb	0 17 0	0 18 0	lb 0 6	235	63
D.P. Hudson's Bay ......lb	0 18 0	1 0 0			
Catechu, BD. Pale c	1 1 0	—	c 1 0	53,160	48,318
Dark	1 6 0	—			
Cinchona Bark, Pale (Crown)....lb	0 2 0	0 3 6	lb 0 1	—	4,804
BD. Red ....lb	0 2 0	0 4 0			
Yellow ....lb	0 4 0	0 4 4			
Colocynth, Turkey ....lb	0 1 6	0 2 9	lb 0 2	950	1,760
D.P. Mogadore ....lb	0 1 0	—			
Calumba Root, BD. c	0 12 0	1 15 0	lb 0 2	2,171	1,048
Cubebs, BD. c	3 0 0	3 10 0	lb 0 6	5,178	8,600
Gamboge, BD. c	5 0 0	15 0 0	c 4 0	—	11
Gentian, D.P. c	1 10 0	—	c 4 0	109	98
Guaiacum, D.P...................lb	0 1 0	0 3 0	c 6 0	—	1
Gum Arabic, Turkey, fine, D.P... c	12 0 0	13 0 0	c 6 0	1,366	1,152
Do. seconds, D.P. .. c	7 0 0	7 10 0			
Barbary, brown, BD. c	1 19 0	2 0 0			
Do. white, D.P...... c	5 10 0	—			
E. I. fine yellow, BD. c	2 5 0	2 14 0	c 6 0	1,087	748
Do. dark brown, B.D. c	1 15 0	2 5 0			
—— Senegal garblings, D.P. c	3 0 0	—	c 6 0	2,229	2,396
—— Tragacanth, D.P. c	8 0 0	12 0 0	c 6 0	5	—
Iceland Moss (Lichen), D.P. ....lb	0 0 2½	0 0 3	lb 0 1	1,996	—
Ipecacuanha Root, B.D. ....lb	0 1 3	—	lb 1 0	2,300	1,935
Jalap, BD. ....lb	0 2 9	—	lb 0 6	6,152	7,378
Manna, flaky, BD. ....lb	0 2 3	0 2 6	lb 0 3	2,097	2,161
Sicilian, BD. ....lb	—	—			
Musk, China, BD. ....oz	1 0 0	3 10 0	oz 6 0	195	201
Myrrh, East India, BD. c	5 0 0	14 0 0	c 6 0	16	42
Turkey, BD............. c	2 0 0	11 10 0			
Nux Vomica, BD.................lb	0 8 0	0 9 0	lb 2 6	—	—
Opium, Turkey, BD. ....lb	0 9 0	—	lb 1 0	5,066	7,429
Peppermint, Oil of, F. BD.......lb	0 12 0	0 13 0	lb 4 0	78	788
Quicksilver, BD. ....lb	0 3 11	—	lb 0 1	42,021	57,656
Rhubarb, East India, BD.......lb	0 5 0	0 7 0	lb 1 0	16,745	22,517
Dutch, trimmed, D.P. lb	0 8 0	0 9 0	F. lb 1 0	10,073	9,007
Russian, BD. ....lb	0 7 6	0 8 6			
Saffron, French, BD. ....lb	—	—	lb 1 0	70	515
Spanish ....lb	1 10 0	—			
Sarsaparilla, Honduras, BD.....lb	0 1 0	0 1 9	lb 0 6	30,619	16,834
Lisbon, BD. ......lb	0 2 0	—			
Scammony, Smyrna, D.P.......lb	—	—	lb 2 6	707	2,026
Aleppo ....lb	0 18 0	1 0 0			
Senna, East India, BD. ....lb	0 0 3	0 0 4	E.I. lb 0 6	12,375	12,210
Alexandria, D.P.........lb	0 1 6	0 1 8	Other sorts 0 6	13,810	5,993
Smyrna, D.P. ....lb	0 1 0	0 1 3			
Tripoli, D.P. ....lb	0 1 0	0 1 3			

‡§‡ B D. In Bond.—c. Cwt.—B. P. British Possessions.—F. Foreign.—D. P. Duty paid.

SUBCLAVIAN ANEURISM.

On Saturday, the 20th instant, Mr. Partridge, at the King's College Hospital, tied the subclavian artery in the first part of its course, for an aneurism which had existed in the vessel for about twelve months. After the operation pulsation was no longer perceptible in the tumor; and for the first two days, the patient, who bore the operation very well, went on as favourably as could be expected. We believe this is the sixth time that the operation has been performed, and in no case has the individual ultimately recovered; for we regret to say that Mr. Partridge's patient died on the 24th.

MEDICAL APPOINTMENT.

Dr. Forbes (late of Chichester), has been appointed Physician to her Majesty's Household. [This appointment has been held by Sir James Clark, in addition to that of Physician in Ordinary to the Queen, since the decease of William IV. up to the present time, and is now relinquished in favour of Dr. Forbes.]

RECEIVED FOR REVIEW.

Dr. Williams on the Pathology and Diagnosis of Diseases of the Chest.

Illustrations of the Practical Operation of the Scottish System of Management of the Poor. By W. P. Alison, M.D. (Read before the Statistical Section of the British Association, September 1840.)

Organic Chemistry, in its applications to Agriculture and Physiology. By Justus Liebig, M.D., &c. Edited from the MSS. of the Author, by Lyon Playfair, Ph. D.

NOTICE.

Dr. Hocken begs to state, that, by some unaccountable oversight, the combined actions of the obliqui, and also of the recti muscles, in his paper of last week, were misplaced. The obliqui cause elongation of the axis of the globe, and are therefore used in near vision, and *vice versâ*. The contrary was stated in his paper.

ROYAL COLLEGE OF SURGEONS.

LIST OF GENTLEMEN ADMITTED MEMBERS.

Friday, February 19, 1841.

N. L. Dolling.—J. E. Currey.—J. Stephens.—C. Carpenter.—H. G. Dalton.—F. Bird.—C. H. B. Lane.—E. C. Tyte.—A. C. Air.—C. T. Davenport.—H. M. Chapnes.

APOTHECARIES' HALL.

LIST OF GENTLEMEN WHO HAVE RECEIVED CERTIFICATES.

Thursday, Feb. 11, 1841.

Robert Nelson Emerson, Norfolk.—William Cormick, Tabriz, Persia.—Frederick Hodgkinson, Newark, Notts.—John Fewster Dawson, York.—John Lorn, Darlington.—John Royston, Ripley, Derbyshire.—Henry Wilson, Bengeworth, Worcestershire.

Thursday, Feb. 18, 1841.

T. B. Davies, Ruabon.—C. P. Croft, London.—C. Tayler, Deptford.

A TABLE OF MORTALITY FOR THE METROPOLIS,

Shewing the Number of Deaths from all Causes registered in the Week, ending Saturday, the 13th February, 1841.

Small Pox	54
Measles	13
Scarlatina	12
Hooping Cough	56
Croup	12
Thrush	6
Diarrhœa	3
Dysentery	1
Cholera	0
Influenza	2
Typhus	26
Erysipelas	5
Syphilis	0
Hydrophobia	0
Diseases of the Brain, Nerves, and Senses	172
Diseases of the Lungs, and other Organs of Respiration	375
Diseases of the Heart and Blood-vessels	20
Diseases of the Stomach, Liver, and other Organs of Digestion	64
Diseases of the Kidneys, &c.	6
Childbed	12
Ovarian Dropsy	1
Diseases of Uterus, &c.	4
Rheumatism	5
Diseases of Joints, &c.	1
Ulcer	0
Fistula	0
Diseases of Skin, &c.	0
Diseases of Uncertain Seat	134
Old Age or Natural Decay	120
Deaths by Violence, Privation, or Intemperance	28
Causes not specified	5
Deaths from all Causes	1137

METEOROLOGICAL JOURNAL.

Kept at Edmonton, *Latitude* 51° 37′ 32″ *N. Longitude* 0° 3′ 51″ *W. of Greenwich.*

Feb.	Thermometer.		Barometer.	
Wednesday 17	from 36	to 43	29·16	to 29·50
Thursday . 18	37	50	29·54	29·47
Friday . . 19	40	49	29·55	29·70
Saturday . 20	33	50	29·72	29·87
Sunday . . 21	39	51	30·08	30·19
Monday . . 22	29	43	30·23	30·25
Tuesday . 23	35	36	30.24	30·20

Wind, N.W. in the morning, and S.W. in the afternoon and evening of the 17th; South on the 18th; S.W. on the 19th; South on the 20th; since N.E.

On the 17th, general overcast, rain in the morning; the 18th, clear; the 19th, evening clear, otherwise cloudy, with rain; the 20th, morning clear, otherwise, cloudy, with small rain; the 21st, morning overcast, afternoon and evening clear; the 22nd, morning foggy, otherwise overcast; the 23rd, afternoon clear, otherwise overcast.

Rain fallen ·27 of an inch.

Charles Henry Adams.

Wilson & Ogilvy, 57, Skinner Street, London.

THE
LONDON MEDICAL GAZETTE,
BEING A
WEEKLY JOURNAL
OF
Medicine and the Collateral Sciences.

FRIDAY, MARCH 5, 1841.

LECTURES ON THE PRINCIPLES AND PRACTICE OF PHYSIC,

Delivered at King's College, London,

By Dr. Watson.

Lecture XXIV.

Delirium tremens, concluded. Chronic inflammation of the brain. Softening, suppuration, abscess, induration. Tumors in the brain.

I drew a rude outline, yesterday, of that singular and interesting malady usually denominated *delirium tremens*. The disease is very common in this country; for its causes are in common and powerful operation. You will meet with it in every walk of life: and you will be almost sure to witness several examples of it during the course of every year, in any of our metropolitan hospitals. It is not a chronic or vague complaint likely to be treated with *placebos*, or by waiting upon nature. Active measures are pretty certain to be adopted; and, in many cases, one plan of treatment, vigorously pursued, will hurry the patient to his grave; another plan will restore him to health with an almost magical celerity. It certainly bears a strong resemblance to that most formidable disease, inflammation of the brain and its membranes: but the great remedy for encephalitis acts like a poison in pure delirium tremens; and the drug, by the timely and careful administration of which we can often promise a speedy cure in delirium tremens, is one which we must carefully avoid, in the earlier treatment at least, of encephalitis. Accuracy of diagnosis, therefore, between these different disorders, with similar outward signals, becomes of the very highest importance.

Delirium—tremens.—There is delirium always; and there is generally, but not always, tremor. The name is a good enough name, in my humble opinion; yet it has been found fault with, because the trembling is not always present; and some have, therefore, christened it *delirium è potu*, or *delirium ebriositatis*: but these terms are open to just the same objection as the other; for though the disorder is most commonly connected with intemperate habits, that is not always the case. One very curious fault has been discovered in the name: it is said that the delirium cannot *tremble*; and, therefore, that it is better to say, *delirium cum tremore*, or *tremefaciens:* and you would hardly suppose it, but there has been a sort of contention for the honour of thus mending the nomenclature of this disease. But they who object to *delirium tremens* appear to see no harm in *delirium ferox:* whereas it is just as incorrect to say *delirium* is fierce, as to say that it trembles: it is the patient who is furious, even as it is the patient who trembles; and all this dispute about a name is mere trifling. It matters not what we call a disease, so that the name conveys no erroneous theory as to its nature or treatment. No such source of error attaches itself to the term delirium tremens: and, therefore, if it be only to avoid the inconvenience of change, we will adhere to that term.

Recollect that the strong features of the complaint are sleeplessness; a busy, but not angry or violent delirium; constant chattering; trembling of the hands, and an eager and fidgety employment of them. To these are added other symptoms which, though they are not so calculated to strike a looker on, are of not less importance, inasmuch as they help to establish the diagnosis. The tongue is moist and creamy; the pulse, though frequent, is soft; the skin is perspiring, and most commonly the patient is drenched in sweat. The sweat is usually described as having an offensive or a peculiar smell: I cannot say that I have observed it to be so. The face also is said to be pale; but that, I know, is not always the case, and therefore this point cannot be relied upon as a distinguishing circumstance. In one of the instances which I related in the last lecture, the face was flushed, and the eyes red and ferrety.

Let me remind you, in a few words, of the peculiar characters of the delirium. If you question the patient about his disease, he answers quite to the purpose; describes, in an agitated manner, his feelings, puts out his tongue, and does whatever you bid him: but immediately afterwards he is wandering from the scene around him to some other that exists only in his imagination. Generally his thoughts appear to be distressful and anxious; he is giving orders that relate to his business to persons who are absent; or he is devising plans to escape from some imaginary enemy: he fancies that rats, mice, or other reptiles, are running over his bed, or that strangers are in his room. He is perpetually wanting to get out of bed, but he is readily induced to lie down again. It is very seldom that he meditates harm, either to himself or to others; there is rather a mixture of cowardice and dread in the delirium.

All the points that I have been mentioning require to be investigated in every case of this nature: and an inquiry into the previous history of the patient, into what the French call the commemorative symptoms, is equally important. In a large majority of instances you will find that he has been an habitual drunkard; and very frequently that from some reason or other this habitual stimulus has been diminished or taken away. Some accidental illness has befallen him, and he has been restricted to low diet, and as a sailor would say, "His grog has been stopped." When, with symptoms such as I have mentioned just now, you hear a history of this kind, you may be satisfied that the disease is not inflammation of the brain, but delirium tremens. I believe that habitual intoxication of any kind may lead to this disorder; but distilled spirits more so than wine; wine more than beer. I make no doubt either, that what is alleged of the habitual use of opium, in preparing a person to suffer in the same way upon its being withheld, is quite true, although I have had but few opportunities of noticing such cases.

But the disease is not confined to drunkards, although it is so commonly connected with that pitiable vice, as to have been called *mania è potu*. You meet with it occasionally in men who have overstrained their nervous system by other modes of strong excitement. Long-continued mental anxiety, that state of mind in which gamblers and great speculators (who indeed are gamblers) are accustomed to live, may cause it; any thing by which the mind is over wrought. A well-informed medical man, of temperate habits, told me a few days ago that he was on the brink of delirium tremens in the year 1825. He had foolishly entangled himself in some of the speculations which prevailed here like an epidemic at that period, and his mind was on the tenter-hooks of suspense and apprehension for some time. He could not sleep, and he found himself everlastingly chattering. It comes on in the course of certain diseases, as sometimes, for example, in apoplexy: and it is a very common result of bodily injuries and accidents, and of surgical operations; or, I should rather say, that it often *follows* such diseases and casualties; for it is, even then, the consequence of the treatment and regimen to which the patients are subjected, rather than of the surgical or medical complaint. And it is certainly *more* apt to occur, under these circumstances, in old people; and in those who are younger, but have been known to be intemperate. So frequently does the delirium manifest itself upon the cessation of the accustomed spur, that the continually recurring stimulus has been regarded as the *predisposing*, and the privation of that stimulus the *exciting* cause of the affection. Sometimes, however, it comes on in men who are perpetually fuddled, even although they have not intermitted their usual indulgence in drink. We had a porter (an old soldier he had been) at the Middlesex Hospital, who was of great use to us as a subject to practise upon, and to shew to the pupils. I never saw him drunk, so as to be unable to perform his duty: but I cannot conscientiously say that I ever saw him sober. Every three or four months we were sure to have him in the wards with delirium tremens. Sometimes he fell into the hands of one physician, and sometimes of another; but in one of his attacks he slipped through our fingers: I am not certain that he was not nominally my patient on that last and fatal occasion: but assuredly he was never an example of the disease coming on from the adoption of more temperate habits. We often find that the malady shews itself immediately after an unusually severe debauch, which has disturbed the stomach and bowels, and left behind it a proportional degree of exhaustion and languor.

Without knowing why it should be so, my own experience would lead me to the belief that delirium tremens is very uncommon among women. The number of beds for females in the physicians' wards of the Middlesex Hospital is somewhat greater than for males. On the men's side of the house cases of delirium tremens are very frequent; whereas I scarcely remember any on the women's. Yet each sex is obnoxious to its main causes. The gin-shops of this town are said to draw a fearful crowd of votaresses. And we might expect that the more sensitive character of the female constitution would render them especially liable to this peculiar consequence of the abuse of alcohol. My experience, however, is such as I tell you. On the other hand, Dr. Roots thinks he has seen quite as many instances of delirium tremens attacking females as males. The result of M. Rayer's observation is more in accordance with my own. Of 176 patients seen by him, 7 only (not 1 in 25) were women. A still smaller ratio is recorded by Bang, 10 in 456; less than 1 in 45. The disorder appears to be more common in the summer than in the winter months.

The peculiar nature of the complaint, and the proper method of treating it, were first brought into general notice in 1813 by a new work of Dr. Sutton's, of Greenwich. He saw a good deal of the diseases of the smugglers, and the customers of the smugglers, that frequent the coast of Kent; and he was struck by the different event of this disorder in the hands of different practitioners, according as bleeding or narcotics were adopted. It is the same disease which Dr. Abercrombie speaks of as "a dangerous modification of meningitis, which shews only increased vascularity." Dr. Bright also includes it among his cases of "Arachnitis." Both these eminent physicians had learned, however, that the complaint requires a particular method of treatment. Of late years many essays and papers on the same malady have appeared in this country, in France, and in the United States, where the disorder is common. But even now it is not so well understood, throughout the profession, as it ought to be.

You may ask me, what is the essential *nature* of the disease: and I can only state in reply that it consists in *nervous irritation*. Some persons hold that this is tantamount to no answer at all; but I do not agree with them. They seem to think that if you assign a state of the brain or nervous system which is not visible or tangible, you lose yourself in mere hypothesis. But we see a number of striking phænomena in this and in many other forms of disease, for which phænomena we can trace by our senses, in the organ affected, no physical cause; yet we are sure that they have a cause; and we call that cause irritation: if we had given it some Chinese name it would have been all the same. From certain symptoms we infer irritation; just as from certain phænomena we infer gravitation. I do not mean to put the two upon an equal footing; or to pretend to say that the laws of irritation are established with any thing like the certainty which belongs to the ascertained laws of gravity: but we pursue the investigation of these laws in the same way in the one case as in the other: and it is quite idle to object to an arbitrary term, like irritation, because it is meant to represent something which makes itself known to us only by its effects.

Now I apprehend that we are borne out, by authentic facts, in believing that certain changes in the blood-vessels will lead to irritation, and at length to inflammation, of a part. But there are other sources of irritation; and irritation in its turn will lead to changes in the blood-vessels. In the one case we bring back the blood-vessels to their healthy condition, and the symptoms of irritation cease. In the other we calm the irritation, and the previous effect of it upon the blood-vessels stops. In other words, deviations from the natural and healthy state of the nervous system are sometimes the cause, and sometimes the consequence, of disturbances in the sanguiferous system. Whether this be good philosophy, or whether it seem to you rational and intelligible, I do not know; but it is the best explanation that I can offer you upon this subject.

I apprized you, in the last lecture, that the great remedy in delirium tremens is *sleep;* and that our most powerful means of inducing sleep are to be found in opium. The opium must be given in full doses; and it must be fearlessly repeated if its desired effect does not follow. If the patients pass many nights without sleep, they will die. I have tried various forms of opium; and I am quite satisfied with morphia. Some persons, however, have not found it so successful as solid opium, or as the common tincture, laudanum. You may try the one or the other, or the one after the other, if you please. No particular rules can be laid down that will suit all cases. After clearing out the bowels by a moderate purgative, you may give three grains of solid opium; and if the patient shew no inclination to sleep after two or three hours have elapsed, you may begin to give one grain every hour till he does sleep. Or you may prescribe corresponding quantities of the acetate or muriate of morphia; or of laudanum; or of the black drop; or of Battley's liquor opii sedativus. At the same time his room should be kept dark and quiet. If he sleeps for some time he will awake calmer and more sensible; perhaps perfectly so: and you must withhold the remedy, or continue it in smaller or less frequent doses, according to the circumstances of the case.

Dupuytren found opiate enemata of great efficacy in the cases of traumatic delirium that came under his care. That mode of administering the narcotic may properly be adopted, if there be any impediment to its reception or retention by the stomach.

Now sometimes this opiate treatment alone is quite enough. Sometimes it is not. You will meet with patients who resist very large doses of the drug; but who presently sleep, or become composed, if you give some of their accustomed stimulus with it: "a hair (as the vulgar saying goes) of the dog that bit them:" if you put their opiate dose into a glass of gin, or a pint of porter. This I have continually experienced with hospital patients. And I rather think that you may get some clue to the particular cases that require this treatment, by examining into the state of the digestive functions. If you learn that, notwithstanding the intemperate habits of the patient, his appetite for food has continued unimpaired, and his digestion sound, you will, I believe, generally find that good nourishing diet, strong broths for example, and the opium, will suffice for the cure. But if the powers and natural sensations of the stomach have been injured and perverted, as is too often the fact, then a temporary recurrence to the habitual stimulus will frequently be necessary: and it is well to ascertain, in such cases, what the stimulus has been, whether spirits, or beer, or wine, and to order it accordingly. Of course this is not to be continued after the patient has recovered from his delirium; but the stimulus under these circumstances must be cautiously withdrawn. When the stomach retains its power of digestion, the bad habit of drinking ought to be broken off at once: and if, after sleep, you can get the patient to eat heartily of a beef-steak, or mutton-chop, I should always advise it.

There are some things which I find it necessary to mention, for the sake of discommending them. I know persons who in treating these cases combine calomel with the opium. And they say that they cure their patients so; and I make no doubt that they do; neither can I doubt that the same success would have followed the same quantity of opium without the calomel. In *pure* cases of delirium tremens I advise you *not* to give calomel. I know no possible good it can answer: it is itself a source of great irritation to the nervous system in many persons: and if it comes to affect the mouth, you inflict upon your patient a superfluous discomfort; and, I believe, in many cases, a downright injury. You will be told also of digitalis, as a specific remedy for the disease; or you may read of it: but do not be led away from the standard remedies which reason recommends, and large experience has sanctioned. Knowing what we do of the power of opium generally, and of its efficacy in this complaint in particular, I should consider myself guilty of a criminal trifling with human life if I made experiments with digitalis upon the loose reports of some one or two persons, of whose credit or information I knew nothing; and whose dicta had been transferred perhaps from some foreign journal to fill a vacant corner in one of our own. Of the combination of opium and antimony, which has been much praised by good and competent judges, I am unable to tell you any thing from my own experience.

In hospital practice it sometimes becomes necessary to confine the patient to his bed by straps, or to muffle his limbs in a strait-waistcoat: but this is a most unfortunate necessity. Physical coercion, whether manual or mechanical, should never be resorted to, in delirium tremens, when by any means it can be avoided. The angry feeling and mental fret which it produces, and the exhausting bodily struggles to escape or resist the thraldom, are always highly injurious and full of danger to the patient. A couple of strong and good-tempered attendants will not have much difficulty in persuading and managing the sick man, who is seldom either boisterous or obstinate: and if he be intractable by soft words, he will yield more patiently to their gentle restraint than to the force of manacles; while the appearance of coercion need not be continued a moment after his acquiescence.

I have drawn the line between encephalitis and delirium tremens with sufficient clearness, because I have taken well-marked forms of each. But I am sorry to add that there are mixed cases, which are very puzzling when they occur, and exceedingly difficult to treat; and which require opiates on the one hand, and moderate depletion on the other. When the indications are uncertain, or equivocal, we must carefully weigh the different symptoms, and we must cautiously *try* the remedies. The circumstances that most distinguish the one form of disease from the other are to be found in the *pulse;* which is hard and resisting in the earlier stages of inflammation of the encephalon, soft and compressible in delirium tremens: in the *tongue;* which is mostly parched and rough in the former, moist and creamy in the latter: in the *skin;* which is hot and dry in the one case, covered with sweat in the other: in the *countenance;* which is flushed in inflammation, and mostly (though not always) pale in delirium tremens: in the *tremors;* which are not common in the primary periods of inflammation of the brain: in the usual absence of *headache* in delirium tremens: and in the peculiar characters of the *delirium* in the two cases, which I need not repeat. If these symptoms contradict each other, as they sometimes will, you had better act on the *worst* supposition, and presume that there is inflammation, and employ antiphlogistic remedies: but you must not do so with a strong hand; you must use them cautiously, and watch their effects, and guide thereby your subsequent treatment. Take a moderate quantity of blood from the arm: observe whether it has the buffy coat: and note the condition of the patient afterwards. In mixed or ambiguous cases it will be proper to combine calomel with the opium. You will sometimes find a state resembling delirium tremens left after the subsidence of acute inflammation of the parts within the cranium, and requiring the treatment of delirium tremens.

I do not know that there is much good to be expected from counter-irritation in this disease. But after the more decided symptoms were gone by, I have sometimes thought that the recovery has been accelerated by the application of a blister to the nape of the neck.

Inflammation of the brain, and delirium tremens, are distinct diseases. Hence, in the mixed cases, of which I just now spoke, we may expect after death to find, and we often do find, unquestionable traces of inflammatory action within the skull. But pure delirium tremens frequently leaves behind it no morbid appearance whatever in the brain or its membranes. In other cases there is serous liquid collected in the interstices of the pia mater, or in the cerebral ventricles; and I have on several occasions seen the arachnoid thicker and less transparent than is natural, and sprinkled over with little spots or streaks of a milk-white colour. Changes of this kind we believe to be owing to chronic inflammation of the membrane. But, even in these cases, I see no reason for thinking that the fatal disorder had any connection with the morbid state of the arachnoid. We meet continually with like appearances when there has been no delirium tremens; and we have delirium tremens without any such appearances. The habitual abuse of ardent spirits leads to chronic inflammation in various parts and tissues of the body: in the blood-vessels, in the liver, in the kidneys, and in the arachnoid. We need not be surprised at finding that membrane thickened and partially opaque in the victims of delirium tremens; since they are chiefly men who have run a long course of intemperance. I believe that disease to bear the same relation, and no other, to the chronic arachnitis in such persons, as to the chronic hepatitis to which they are equally subject. There is but one morbid condition which, since my attention was first directed to it, I have found constant in persons dead of delirium tremens, and that is, a remarkably soft, pale, and flabby state of the muscular tissue of the heart.

The chemist may be more likely to detect altered conditions in the brain, in these cases, than the anatomist. Very lately Dr. Percy has obtained alcohol from the brain of a person who died from excessive drinking; and from those of various animals which had been killed by that poison. These facts are interesting, but they do not help us much in our attempts to explain the phænomena of the disorder.

Cases such as I related in the last lecture, where violent symptoms are calmed at once, and the patient is rescued in a few hours from great apparent peril, make a strong impression upon those who witness them; and the practitioner gains amazing credit, and is spoken of to all their acquaintances as a wonderfully clever man. It is unfortunate that we are obliged to set off, against this advantage, a corresponding danger, when the disease ends ill, of being blamed without our deserving it. When these patients die (and they usually persist in their evil habits and die at last in one of the attacks of the disease), when they so die, they are apt to die much in the same way as patients who are poisoned by opium; and if their friends are aware that we have been giving large and repeated doses of that drug, they sometimes have the charity to lay the death at our door: and you ought to be prepared for this: and I will conclude what I have to say upon the subject of delirium tremens by relating a case, in which I have no doubt that I suffered (though quite unjustly) under that kind of imputation.

Six or seven years ago I was asked, one morning, by a general practitioner at the west end of the town, to see a patient with him; of whom he gave me this account:—The man was about forty years old: he had been attacked some days before with sore throat, common cynanche tonsillaris; the tonsils and fauces were so much swelled that his deglutition was greatly impeded, and for four or five days he had not been able to swallow any thing. The night before I saw him he had become delirious, and then had been largely bled, and he was worse in the morning. His bowels had also been very much purged.

I found him propped up in his bed, with a coronet of leeches round his head. He was pale; there was no headache, nor affection of his breathing; his pulse was not very frequent, and it was quite soft and compressible. He was sweating profusely. He answered the few questions I put to him readily and pertinently, and then went talking on in a rambling way about his business. He was a hackney-man, or stable-keeper, in a large way. He said (I remember) that the boys were all ready to start; that there were two pair of horses going down the road, and that he must go and see after them; and much more on the same subject. His mind was busy about the execution of imaginary orders. He had not slept at all for some nights.

Upon my inquiring into his previous condition, his wife told me that without any turn for dissipation he had for some time been an habitual hard drinker; that he had continual dealings with the coachmen to the various families which he furnished with horses; and that he was obliged to drink something with each of them; so that every day he had many glasses of spirits, and a good deal of porter. She told me also that his mind had been anxious and uneasy; that the business was a large and harassing one; that he had embarked a considerable sum of money in it; and that it had not turned out so prosperously as he had expected.

Putting all these things together, there could be no doubt, either as to the character of the complaint, or as to the treatment proper to be adopted. Here was a man who had been living a life of continued mental and physical excitement: suddenly the stimulus to which he had been accustomed was taken away; he could not swallow even such nourishment as his case required or admitted: then came on delirium—a symptom not belonging to his disease in the throat—and protracted watchfulness. He is largely bled, and profusely purged, and he gets worse instead of better under these remedies. At the same time his skin is moist and perspiring, and there is no hardness in his pulse.

I recommended that the leeches should be removed from his head; that he should take immediately (for he could swallow now) two grains of opium, and afterwards twenty drops of laudanum every three hours, till he fell asleep.

Somewhat unluckily his wife's brother—a very young man—was the apprentice or assistant of a surgeon in the neighbourhood of town, and he came in to see his relative. After hearing what I had said, he went home, and probably consulted his books, and then came back again with doubts whether the complaint really was delirium tremens after all. Whether in consequence of these doubts I cannot tell, but for some reason or other only one or two doses of the medicine were taken. I had offered to see the patient again in the evening; but his friends said they would send for me if he did not get better. They did not send; and the patient did not sleep. At night, therefore, at ten o'clock, three grains of opium were administered. The result of this was, that he passed a quiet but a sleepless night. Perhaps (but I cannot be sure of that) if the opium had been persisted with, the case might have terminated otherwise. About eight o'clock the next morning I was summoned to him in a great hurry: when I got there he was dying, perfectly comatose, breathing stertorously, with blue lips and contracted pupils. He had appeared so much better at seven, that he was, for the first time, left alone for a quarter of an hour; and when they went back to him he was changed in the manner I have described.

The general practitioner with whom I had first seen the patient—a very sensible man—was much concerned at this issue of the case, and observed to me that doubtless our patient had been poisoned by the three grains of opium. I was able, however, to relieve his mind from this notion; and I have mentioned the case chiefly for the sake of guarding you against similar misgivings, under similar circumstances. The manner of dying was just such as opium will produce; but, then, death by coma is also frequently the termination of delirium tremens: effusion at length is apt to take place into the ventricles, or into the meshes of the pia mater, and stupor comes on, and the patient sinks. But in this instance I was certain that his death had nothing to do with the opium he had taken, for this reason: that so long a space of time had elapsed—nine hours—between his taking the opium and the coming on of the comatose symptoms. Dr. Christison, in his elaborate and valuable work on Toxicology, states it as the result of extensive inquiry into this subject, that when opium has been swallowed in a poisonous dose, it almost always begins to act as a poison within an hour; that very rarely indeed has its specific operation been postponed much beyond the hour, except, occasionally, when the person taking it has been intoxicated at the time. In one remarkable instance a drunken man took two ounces of laudanum, and no material stupor followed for five hours. I guess that I incurred the reproach of recommending a fatal plan of treatment in the particular case I have now related; but I am quite satisfied that the opium was innocent of the patient's death, and I even think that his chance might have been much mended if the opiate, in smaller doses perhaps, had been steadily continued.

We may be content to bear, occasionally, these unfounded imputations, when we consider the other side of the account, and call to mind the far greater number of instances in which spontaneous recoveries are credited to us as cures; and the Doctor, like Belinda's Betty, is "praised for labours not his own."

I should next wish to put you in possession of what has been ascertained in respect to *partial* and to *chronic* inflammation of the brain, as these are met with in adults; for I must speak of the head affections of children separately. But I really do not know how to bring this part of the subject before you in a practical manner. If I were first to describe symptoms, and then to state what organic changes had been discovered after death preceded by them, I should have to tell you of different symptoms with the same morbid conditions, and of the same symptoms with different morbid conditions, in various individuals. I believe the best method, upon the whole, will be to describe the several morbid appearances which the brain is found to present; and then to mention the symptoms that have *most commonly* been observed to occur in association with such morbid conditions. I must premise, however, that the whole subject is full of uncertainty and apparent irregularity. Doubtless there *is* some constant and uniform connexion of cause and effect between the altered physical states of the brain and the altered manifestation of its functions; but we have not yet been successful in our search after those settled relations; or we have but partial and imperfect glimpses of them.

Ramollissement.—One very remarkable condition of the brain has been several times mentioned in these lectures; viz. *softening*. A great deal of attention has been paid to this condition of late years, both in France and in this country: and some points in its pathology have been fairly made out. I will bring them together as concisely as I can. In the first place, the softening varies greatly in degree, from the consistence which naturally belongs to the cerebral substance, to that of thin cream. In its minor degrees it may be easily overlooked; and is more perceptible by the touch than by the eye. The cerebral matter is less coherent, but it is not yet discontinuous or broken down. It may be washed away, however, by letting a slender stream of water fall upon it; and the softened parts are thus easily distinguishable from those which retain their natural consistence. In the next stage of softening we recognize the complaint at once, for the softened parts undergo a change of form by their own weight: parts that are prominent in the healthy state, as the optic thalami, corpora striata, and convolutions, sink down, as it were, and are more or less flattened. If you make a horizontal section through a part thus diseased, a portion of the softened brain adheres to the knife, and is removed by it, and a depression is left. In a still more advanced degree, the natural texture of the organ in the softened part is entirely destroyed and confused by the change, diffluent: you may pour the softened matter out.

The *colour* of the softened portions varies also considerably. Sometimes they are unchanged in colour: sometimes they are quite white, and present a strong contrast with the tint of the neighbouring parts: sometimes they are marked with various shades of redness, from a rosy pink to an orange, or deep red, or even a mahogany brown. Often there are red spots mixed irregularly with the softened cerebral pulp, and giving it very much the appearance of a mixture of raspberries and cream. In other cases we find the softened mass of a pale yellow, or straw colour, infiltrated, as it were, with purulent matter: and sometimes it is mixed with serous fluid.

Softening of the brain is usually partial. It may occupy any part; but it is said to be more frequently met with in the grey than in the white matter: and more often in the grey matter of the convolutions than of the more central parts of the brain.

You will find softening of the septum lucidum, and of the fornix, occurring very frequently in connection with an accumulation of serous fluid in the lateral ventricles.

Now, it is well established that softening of the brain is a common result of two very different morbid conditions. It is often caused by inflammation of the softened part: it is often caused, also, if I may say so, by its starvation; by the diminished supply of arterial blood, in consequence of diseased blood-vessels.

Can we distinguish these two forms of softening from each other by their physical characters? Why, sometimes we can: and sometimes, it must be confessed, we cannot.

The same parts that are most liable to have their consistence diminished, through an inflammatory process, are also most liable to be softened from defect of nutrition. The most vascular parts of the brain, in short: the grey matter of the convolutions, and the grey matter of the thalami, and corpora striata.

It is stated, however, that softening of the corpus callosum, septum lucidum, and fornix, from obliteration of the arteries, is extremely rare.

If there be pus mixed with the softened brain, we know that there has been preceding inflammation. Again, if we find the arteries impervious, we conclude that the softening has not been inflammatory. Dr. Carswell states that the obliterated arteries may occupy the softened cerebral substance, and may often be seen ramifying through it; and that when this substance is removed by pouring water upon it, the solidified vessels retain their situation, and feel sometimes as hard as fine wires. But we come to the same conclusion if we find the larger vessels, the carotid or vertebral arteries, obstructed by ossification; and a large portion of the brain unnaturally soft.

We have no certain test of the nature of the softening in its being red. The redness may be the result of inflammatory congestion; but cerebral hæmorrhage may occasion softening; and, on the other hand, softening may give rise to cerebral hæmorrhage. *This* may be said, however: that the redness is seldom *considerable* when the softening proceeds from an obliteration of the arteries. When the softening extends much beyond the redness, or the effused blood; or when the redness occupies several small portions only of the softened pulp; we may presume that the blood was extravasated subsequently to, and in consequence of, the softening

On the other hand, when redness and vascularity can be traced into the brain, some way beyond the softened part, we may regard the softening as the consequence of inflammation. And we adopt the same belief, with still greater confidence, when around the softened and disorganized pulp we find the cerebral substance *hardened*, and of a uniform reddish colour.

In attempting to make the diagnosis between these two forms of softening, we get some assistance by noticing the *age* of the patient. The ossification, which gives rise to the obliteration of the arteries, is almost peculiar to the advanced periods of life; whereas inflammatory softening may occur at any age; in children, in adults, or in old persons.

Some of the French pathologists have laid down this rule as the result of their experience in regard to softening of the brain—that it is attended, during the earlier part of its progress, with a permanently contracted state of the flexor muscles of one or more of the limbs. "In some cases the contraction of these muscles amounts only to a slight degree of stiffness; in others it reaches such an extent, that if the arm be the part affected, the hand is clenched, and remains pressed against the shoulder; or, if the leg, the heel is carried up to the hip." Sometimes this tonic spasm is so strong that you cannot extend the limb; and the attempt to do so gives the patient pain. After a certain time the rigidity is succeeded by complete relaxation; the contracted limb has become palsied.

I believe that this is a valuable diagnostic symptom of softening, and especially of inflammatory softening—*when it occurs*. But it is often wanting. I wish I could tell you something more certain and constant in respect to the symptoms of this interesting change; but the facts that I have myself observed, and which have been recorded by others, will not permit me to do so. Dr. Abercrombie even goes so far as to say, that judging from the cases that have fallen under his own notice, there is no foundation for the statement that *ramollissement* is distinguished by tonic contraction of one or more limbs: that the same thing is met with in connection with affections of the membranes, without any disease of the cerebral substance; and with the encysted abscess of the brain; and that it is frequently observed in cases of typhus fever, where there is much cerebral disturbance, but which terminate favourably. I will give you the general result of his experience in this matter, as being untinctured with any wish to reduce his facts into compliance with a preconceived opinion, or hasty generalization. He states that "the cases which terminate by ramollissement seem in general to be characterized by convulsion, more or less extensive, followed by paralysis and coma; the convulsion ceasing for some time before death, and being succeeded by the coma." But he saw one case in which "the convulsion continued with the utmost violence till the very time of death." In another instance "there was no convulsion at all, but a sudden attack of palsy, exactly resembling the ordinary attack of hemiplegia from other causes." In two cases he found "ramollissement of very limited extent, in connection with symptoms of long standing, both cases being at last rapidly fatal by a sudden attack of convulsion." In other cases "there was extensive destruction of the cerebral substance, without either paralysis or convulsion, and even without coma."

Suppuration and abscess of the brain.—When you find the softened substance infiltrated with purulent matter, you may call the case one of suppuration of the brain. But suppuration also occurs in another form; viz. in the form of abscess. The pus is contained in a regular well-defined cavity, surrounded by cerebral matter in a healthy or in a hardened state. Now in suppuration occurring in the brain, there is the same puzzling diversity of symptoms as in cases of simple softening. Still, in the main, there seems an approach to the same order of symptoms; convulsions in the earlier period constituting the most prominent feature of the disease; paralysis in the latter. I will take one of Dr. Abercrombie's cases in illustration of the formation of encysted abscess in the brain.

A girl, aged eleven, thin and delicate, after having complained for some days of headache, was seized, on the 11th of January, with convulsions, which continued about half an hour: paralysis of the right arm followed the attack of convulsion. She was bled from the arm, and purged, and cold was applied to her head; and she was much benefited by this treatment. On the 13th the headache was much abated, and she had recovered a considerable degree of motion of the arm. On the 15th the headache increased again, and the arm became more paralytic, and she was again bled: and on the 16th and 17th the power of moving the arm was greatly improved. On the 18th, after being affected with increase of headache, and some vomiting, she became convulsed, the convulsion being confined entirely to the head, and to the right arm; the head was drawn towards the right side, with a rolling motion of the eyes; the arm was in constant and violent motion. She was sensible, and complained of headache. Being bled to eight ounces, the convulsion ceased instantly, and the headache was relieved; but the right arm remained in a state of complete paralysis. Her pulse, during the five following days, fell from 100 to 60; some headache continued; she had occasional vomiting; and the convulsive attacks returned several times: they were entirely confined to the right arm, which, after the 23d, was left in a state of permanent paralysis. Hitherto no other parts of the body had been affected by the convulsion; but on the 24th it attacked the right thigh and leg, and left them in a state of paralysis. The former remedies were repeated without any effect. The thigh and leg went through a course precisely similar to that described in regard to the arm, and on the 29th remained in a state of permanent paralysis.

She was now, therefore, paralytic of the whole right side; she had no return of convulsion, was perfectly sensible, and made little complaint. Gradually she became dull and oppressed, and at length fell into a state of perfect coma, and died on the 14th of February, a little more than a month after the commencement of her illness.

In the upper part of the left hemisphere of the brain there were two distinct defined abscesses, containing together from six to eight ounces of very fœtid pus. They were lined by a firm white membrane; and a thin septum of firm white matter separated them from each other. The one was in the anterior part of the hemisphere, very near the surface; and the other immediately behind it. In the posterior part of the right hemisphere there was a small abscess containing about half an ounce of pus. There was no serous effusion in any part of the brain, and no other morbid appearance.

In this very interesting case it is worth remarking how the convulsion preceded the paralysis, and how the palsy was more than once diminished by antiphlogistic measures.

It is reasonable to conclude—it can hardly be called a conjecture—that in such cases of partial disease of the brain as I have hitherto mentioned, the occurrence of convulsion, or of rigidity, marks the inflammatory stage; and the supervention of permanent paralysis denotes the period of softening or suppuration, of complete disorganization, that is, of the texture of the brain in that part.

Induration of the brain.—Partial inflammation of the brain, especially when it is chronic, sometimes produces a totally different change from any that have yet been described. Instead of becoming softer, or being converted into pus, the inflamed part is indurated; comes to resemble in consistence portions of brain that have been for a short time immersed in weak nitric acid. In this state it is often unusually vascular and injected. When the induration is greater in degree, the hardened part assumes the appearance of wax, or of boiled white of egg, or (as Andral says) of Gruyère cheese, and contains but little blood, but is, on the contrary, distinguished by its pearly whiteness. That these changes are the result of slow inflammatory action is the more probable, because they are sometimes found to exist around an old apoplectic clot or cell; the blood effused having acted as a cause of inflammation of the neighbouring part, just as any foreign substance might do. In the progress of cases in which partial induration is effected, convulsive movements are common, but paralysis does not appear to be so frequently present. The symptoms may go on for months, and often remit, and are again aggravated by paroxysms. These cases are the more interesting, because they offer a greater probability of cure than those that are attended with an opposite condition of the cerebral mass.

Tumors of the brain.—Besides these varieties of inflammation, and their consequences, the brain is often infested with tumors, which also give rise to a great diversity of symptoms. There are fibrous tumors which grow rather *around* the nervous matter than within it, and are connected with the dura mater. They have been found at almost all parts of the surface of the brain; at its base, at its sides, and towards its summit. Scrofulous tubercles are also not uncommon: these are embedded in the nervous substance, and assume a round form, for the reason I formerly mentioned, viz. because the tubercular matter that is separated from the blood is not cast into any particular mould (as it is when it is effused into the small bronchial tubes), but poured forth into the homogeneous pulp, which exerts an equal degree of pressure upon it on all sides. These scrofulous tubercles of the brain are infinitely more frequent in children than in adults; and they are more commonly met with in the cerebral hemispheres than in any other part of the brain, occupying the cortical and medullary substance indifferently. They sometimes appear to originate in the pia mater. They differ from pulmonary tubercles in this respect, that they are seldom numerous in the same brain. Sometimes one only is found. They vary in magnitude from the size of a large pin's head to that of a hen's egg; and they are sometimes even bigger than that. The substance of the brain immediately surrounding these tubercles may be unchanged, in which case it is probable that the tubercles themselves give rise to no particular symptoms, the cerebral matter of the spots they occupy having been gradually absorbed to make room for them; but at length important alterations take place in the neighbouring texture; congestions of blood, or softening, or suppuration; and then the ordinary consequences of these changes declare themselves outwardly.

Cancerous tumors occur also in the substance of the brain. They usually occupy a large portion of it before they extinguish life. Hydatids are sometimes found there.

Now of the occurrence of these various local maladies of the brain it is necessary that you should be aware, for you may expect to meet with them frequently in practice. And it is right also that you should be aware that they do not disclose their precise nature by any peculiar symptoms, or succession of symptoms. They all, sooner or later, disturb the functions of the organ in which they are situated; and they may all disturb them exactly after the same fashion. We may judge, sometimes, *from other circumstances*, that the disease is of this or of that character. If we see scrofulous or cancerous disease in other parts of the body, we infer that the symptoms which denote disease of the brain are caused by scrofulous or cancerous tumors there situated; but from the symptoms themselves, we can only learn that there is some morbid condition of the brain.

I attended, recently, with Dr. Latham, a youth, whose symptoms led us to believe that he had tubercular disease of the peritoneum; a very formidable complaint, which I shall more particularly describe hereafter. We thought it probable also, although there were no *physical signs* of pulmonary disease, that his lungs contained crude tubercles. After some time, he went down to the coast; and was there attacked with a fit of general convulsions. Up to that period he had shewn no symptoms whatever indicative of organic disease within the head. On being apprized of this seizure, we expressed to the physician then attending him, our opinion that it had resulted from the presence of scrofulous tumors in the patient's brain. The convulsions returned a few days afterwards with great violence, and he died. It was as we had conjectured. The peritoneum was found studded with innumerable miliary tubercles: there were a few crude tubercles, of some size, around the roots of the lungs; and two large masses of the same sort in the brain. Here, you see, we were directed to a correct special diagnosis of the cerebral disease, simply by the evidence which had satisfied us that scrofulous tubercles existed in other parts of the body.

In the case of specific tumors there is really nothing to be done by way of cure; and we must then treat symptoms, and seek to alleviate them as they arise. When it appears likely, or not unlikely, that the cerebral symptoms may be the result of cerebral inflammation, we must give the patient the chance of being benefited by some of the remedies of inflammation: we must treat the case in this instance upon the *most favourable* supposition. The class of remedies from which most may be hoped in equivocal cases, are local bleeding, counter-irritation, and especially the cautious and regulated employment of mercury. I have stated to you before, that I have known several obscure but threatening symptoms of brain disease clear entirely away, when the gums were made sore by mercury, and kept slightly tender for some little time. It is possible that we may sometimes do our patients harm by this mercurial treatment. We may, now and then, accelerate the arrival of death in cases which nothing could save: but we must not be deterred from giving them this chance of being rescued from a disorder which may be susceptible of cure, but which, if unchecked, will be inevitably fatal.

LECTURES
ON THE
FUNCTIONS OF THE NERVOUS SYSTEM.

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Lecture II.

General Sketch of the Comparative Anatomy and Physiology of the Nervous System.

Although the structure and distribution of the nervous system in the different classes of animals have been, until recently, but little appealed to in the determination of its functions, they are capable of supplying evidence regarding some of these, not less important in its character than that which comparative anatomy affords to other departments of physiology. Some of the principal of these contributions will now be pointed out.

In the lowest tribes of the *Radiated* division of the animal kingdom, no nervous system has yet been discovered. These have, therefore, been separated by some naturalists into a new primary group, to which the designation of *Acrita* has been given, on account of the (supposed) "*indistinct*, diffused, or molecular character of their nervous system." This idea of a "diffused nervous system" seems to be regarded by many—physiologists as well as naturalists — as the necessary alternative, resulting from the want of any definite indications of its presence. It appears to me, however, to be based on very erroneous notions as to the true offices of the nervous apparatus. Its influence is not required to endow the tissues with *contractility;* a property possessed in a high degree by the structures of many plants, to which these beings present a much greater *general* resemblance than they bear to the higher animals; and, even in the latter, this property is independent of "nervous agency," although generally called into exercise by it. That a nervous system is not required by them for the performance of the functions of nutrition and reproduction, otherwise than to supply, by its locomotive actions, the conditions of those functions, would also appear from its absence in plants. It is on the sensible movements of these beings that our belief in their possession of a nervous system must be founded, when we cannot render it cognizable by our senses. But we must be careful not to draw hasty inferences from such phenomena. Sensible movements are, as we have seen, performed by the Dionæa and sensitive plant, in respondence to external stimuli acting on distant organs; and here the channel of communication is probably the vascular system. We observe, however, that in the polypes an impression made upon one part (one of the tentacula, for example) is propagated to distant parts, and excites respondent movements in them, more rapidly than we could imagine to occur without such a channel of communication as as a nervous system *only* is known to afford. Moreover, some of their actions appear to show a certain degree of *voluntary* power, and therefore of consciousness; being independent, so far as can be ascertained, of the operation of external stimuli. These phenomena, then, would lead us to suspect the existence of a nervous system in the beings which exhibit them; not, however, in a "*diffused*" condition, but in the form of connected filaments. For, what consentaneousness of action can be looked for in a being whose nervous matter is incorporated in the state of isolated globules with its tissues? How should an impression made on one part be propagated by these to a distance? And how can that consciousness and will, which are *one* in each individual, exist in so many unconnected particles? If, then, we allow any sensibility, consciousness, and voluntary power, to the beings of this group of Acrita—to deny which would be in effect to exclude them from the animal kingdom—we must regard these faculties as associated with nervous filaments, of such delicacy as to elude our means of research. When the general softness of their textures, and the laxity of structure which characterizes the nervous fibres in the lowest animals in which they *can* be traced, are kept in view, little difficulty need be felt in accounting for their apparent absence. The case is very different from that of vegetable structure, the greater consistency of which enables us to place much more reliance upon the negative evidence afforded by anatomical research.

The correctness of this view (on which I have dwelt the longer, because it appears to me to involve a fundamental question in nervous physiology,) is borne out by the fact, that, in those members of the group whose size and consistency allow their structures to be sufficiently examined, a definite nervous system has been detected, in the position which it might, *à priori*, be expected to occupy, according to the type of the individual. Thus, in the large fleshy isolated polype, commonly known as the sea-anemone (*actinia*), a nervous ring has been discovered, surrounding the mouth as in other radiata, and sending off branches to the tentacula, with a minute ganglionic enlargement at the base of each. Similar nervous circles have been stated to exist in various species of the *Medusa* tribe. Amongst several of these tribes, too, minute red spots are to be observed, which, from the analogy of similar but more perfect organs in the higher classes, are believed to be eyes. It is obvious that these could be of no service to the animal in directing it to the choice of food, or in warning it of danger, unless they were connected with some central sensorium. It is curious that these should present themselves in many animals in which no nervous filaments have been detected. Thus, we find them as well marked in the Planariæ (which so much resemble the Entozoa in general structure) as in the Medusa and Pecten, in which nervous filaments can be traced running towards them, if not absolutely into them. Dugès found that, if strong solar light be directed to the head of the Planaria, on which two of the eye-specks are seen, it escapes from its influence by a sudden movement,—a fact which seems almost indisputably to prove the existence of a connected nervous system in this gelatinous animal, although the most careful research has not discovered it.

Regarding the *Polypifera*, then, as the lowest of the radiated classes in which there is a regularly organized digestive apparatus, and which perform movements of a character ascribable only to a nervous system, I shall inquire a little more particularly into the phenomena they exhibit, and the degree in which these necessarily involve the possession of the higher mental endowments. In this inquiry I shall refer principally to the little *hydra*, or fresh-water polype, the habits of which are better known than those of any other species. Although no nervous filaments have been detected in this, we have a right to infer their presence for the reasons already given; and they probably form a ring around the mouth, as in the actinia, sending filaments to the tentacula. There has been much vagueness in the comparisons frequently drawn between the springs of action in this creature, and the agents which operate in higher animals. And this may be attributed to the tendency which has prevailed among many physiologists, to grasp at a superficial resemblance, instead of seeking for a fundamental analogy. Thus, some naturalists seem by their language to imply that the hydra possesses as much sensibility, and is as completely under the guidance of volition, as man himself. But what is the character of this interesting little being? It is a *stomach*, the orifice of which is provided with tentacula, that contract when irritated by the touch of any adjacent body, and endeavour to draw it towards the entrance. Now, to what action in the human body is this most allied? Evidently to that of the muscles of deglutition, which lay hold, as it were, of the food which has been conveyed to the fauces, and carry it into the stomach. These muscles are called into action, not by an effort of the will, but by the contact of the food with the lining membrane of the pharynx. This *impression* is propagated by the glosso-pharyngeal nerve to the medulla oblongata, where a respondent motor impulse is excited, which is transmitted through the pharyngeal branches of the par vagum to the muscles of deglutition, and causes their contraction. This phenomenon will be more fully examined in a future lecture; it is adduced here simply as an instance of the important class of *reflex* movements, which are independent of the brain (though, to a certain extent, controlled by it), which are altogether involuntary, and which do not *necessarily* involve the production of sensation. There would appear to be little difference in the character of this movement, between the simple hydra and the most perfect vertebrated animal. In the latter, however, another set of muscles are superadded to these, for the purpose of preparing the aliment by mastication for the operations of the stomach, and of bringing it within reach of the pharyngeal constriction. But, it has been urged, the inactivity of the tentacula when the hydra is gorged with food, proves that they are excited to action by the will of the animal. This inference, however, may be easily disproved. The muscles of deglutition in man are not called into action with nearly the same readiness and energy when the stomach is distended as when it is empty; a fact of which any one may convince himself, by observing the relative facility of swallowing at the commencement, and termination of a full meal. No one will assert that *this* variation is an effect of the will; indeed, it is often opposed to it, being one of those beautiful adaptations by which the welfare of the economy is provided for, but which the indulgence of the sensual appetites opposes. Most of the movements of this animal, and of others of the class, appear to be equally the result of external stimuli with that already described; and it is only in a few instances, principally those of absolute locomotion or change of place, that any evidence of *voluntary* action can be discerned. It may be occasionally remarked, however, that one or more of the tentacula are retracted or extended, without the slightest appreciable change in any of those external circumstances which seem ordinarily to affect the motions of the animal; and this action we can scarcely regard as otherwise than voluntary.

As my present object is to obtain from comparative anatomy such illustrations as it is capable of affording, in the study of the complex phenomena of the nervous system in the higher animals, rather than to detail systematically the varieties of form which this system presents in each group, I shall pass over the less important classes, and proceed at once to the highest of the radiated division—the *Echinodermata*. With considerable diversity of external form, there is nevertheless a close correspondence in the disposition of the principal organs among the different members of this extensive group; and this is especially the case in regard to the nervous system, which we shall describe as it exists in the common star-fish (*asterias*). In this animal there is a filamentous ring surrounding the mouth, which presents a regular series of ganglionic enlargements, of which one corresponds with each segment of the body. From every one of these a branch is transmitted to the corresponding ray; and this may be traced along its whole length. In some species of asterias a small red spot may be seen at the end of each ray, which is probably a rudimentary eye; and this is connected with a minute ganglionic enlargement at the extremity of the nervous filament, near which it is situated. A curious disposition of the spines around these spots has been lately pointed out by Mr. E. Forbes, by which these organs may be protected; and the same gentleman has remarked that the animal seems by their means to take cognizance of food placed at a little distance. Besides these diverging branches, two smaller ones pass downwards from each ganglion, to be distributed to the stomach and other viscera

FIG. 1.

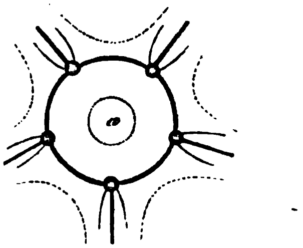

FIG. 1.—Nervous system of *Asterias*: the dotted line shows the outline of the body; *a*, position of the mouth.

included in the centre of the star. If, as seems probable, these may be regarded as the rudiments of the sympathetic or visceral system of the higher animals, we have here an instance of that community of function which is so remarkable in the organism of the lower tribes, when contrasted with the separation which is perceptible in those at the opposite extremity of the scale. The visceral nerves of the asterias are not isolated at their central terminations from those which are connected with the sensorial and locomotive functions; nor are those which minister to the instinctive actions separable from those which convey the influence of the will. Every segment of the body appears equal in its character and endowments to the remainder; each has a ganglion appropriated to it; and, as the ganglia, like the segments, are all alike, neither of them can be regarded as having any *presiding* character.

From the radiated we now pass to the *Molluscous* classes; the general character of which, as a natural group, is the remarkable predominance of the nutritive system over that of animal life. In fact, although the organs which minister to their vegetative functions attain a very high degree of development, the animal powers of sensation and locomotion are, in general, so feebly manifested, as to show that they are entirely subservient to the exercise of the former. There is not in the Mollusca, as in the Radiata, any repetition of parts around a common centre; and we do not therefore meet in them with a number of ganglia nearly or altogether alike in endowments. In some of the higher species there is a conformity between the two sides of the body, or a lateral symmetry; which involves a subdivision of some of the ganglia that are single in the inferior tribes into two masses, which always remain in connection with each other. With this exception, it may be observed, that all the ganglia, to the number of four or five, which we meet with in the higher Mollusca, appear to have distinct functions; as may be determined by tracing the distribution of their nerves. Thus we find a pair of *cephalic ganglia*, situated above the œsophagus, connected with the organs of special sensation, and sending motor nerves (as we shall see reason to believe) to all parts of the body. This is obviously analogous to the brain of Vertebrata. Below the œsophagus there is generally a small ganglion, connected with the apparatus of deglutition, which may be called the *stomato-gastric* ganglion. In connection with the gills we have always one ganglion, sometimes a pair, which may be termed the *branchial* ganglion. Another is found at the base of the foot, which may be called the *pedal* ganglion. And there is sometimes another, which especially supplies the mantle with nerves; and this may be called the *palleal* ganglion. The distribution of their nerves to the different organs would alone indicate their respective functions; but these are placed beyond doubt, by that very great variety in the disposition of these organs, which is characteristic of the Mollusca. The development of the sensory organs, the situation of the gills, the structure and position of the foot, the conformation and uses of the mantle, are well known to differ in the most obvious manner, in genera which are closely allied to each other. Hence the anatomist is able, by the discovery of corresponding changes in the nervous system, to satisfy himself of the particular functions of its different centres.

It is only in the higher tribes, however, that this separation of function is evident; and it will be worth while to trace briefly the steps by which it is attained. Feeble as are the animal powers in a great proportion of the Mollusca, they would seem to be almost extinct among the members of the class *Tunicata*, or *Acephala nuda*. These animals are enveloped in a tough elastic tunic (the analogue of the *valves* of the Conchifera); and within this is found a muscular coat, consisting of fibres crossing each other in various directions, by which compression may be exercised on the contents of the cavity it surrounds. Two openings penetrate these sacs; one, termed the *branchial*, admits water to the general cavity, partly for the purpose of aerating the blood, and partly to bring food to the digestive orifice; the other, termed the *anal*, gives exit to the current which has passed over the respiratory surface, and also to the contents of the intestine and ovaria. These openings are bounded by distinct circular sphincters, the fibres of which are connected with those of the general muscular integument of the sac. By means of this apparatus the animal is capable of diminishing the capacity of the branchial sac, and thus of ejecting, with considerable force, a part of the water it contains; whilst the elasticity of the external tunic spontaneously restores its usual dimensions, when the contracting force is inactive. No movements of this kind, however, are commonly employed, either for the respiratory process, or for the prehension of food. A continuous and equable current of fluid enters the branchial orifice, and is propelled from the anal, without any other visible agency than the movement of the cilia which cover the aerating surfaces. The mouth, or entrance to the stomach, is situated at the bottom of the branchial sac, and is unprovided with any special sensory apparatus. It seems to derive its supplies from the respiratory current alone, and not to depend upon any prehensile movements; but particles unfit to enter it are probably stopped at the branchial orifice. Moreover, as each animal possesses within itself all the organs necessary for the propagation of its race, no powers of active motion are called into exercise by the performance of this function.

So far, therefore, as the regular vital operations are concerned, we see no indication of *voluntary* action in these singular animals; or even of that kind of respondence to impressions which would lead us to suspect the existence of a connected nervous system. But in the simultaneous contraction of the whole muscular sac, which is occasionally witnessed, we can scarcely fail to acknowledge the operation of nervous agency. If one of these animals be touched, when its cavity is full of water, a jet of fluid is thrown out to some distance; and a similar expulsion sometimes takes place without any external irritation. The only organs peculiarly adapted for receiving sensory impressions, which these animals can be regarded as possessing, are the tentacular filaments which fringe the interior of the branchial orifice. Although nothing is absolutely known of their function, it would not seem improbable that they are susceptible of impressions from substances entering with the respiratory current; and that these may excite, through the nervous system, the closure of the sphincter, and may thus prevent the admission of injurious bodies. We find, on examining into the character of this nervous system, that it is most simple in its structure and distribution. One ganglion, situated between the two orifices, serves as the centre of all the actions to which it ministers. From this, filaments are sent towards each aperture; and others ramify over the muscular sac, to which they seem almost exclusively confined. If the closure of the branchial orifice really takes place under the circumstances just described, it is evident that we may attribute it to a reflex [illegible] 's performed in direct resp [illegible] rnal stimulus; and since the closure of the sphincters in the higher animals is, in like manner, independent of the impulse of volition, although capable of being influenced by it. It would seem probable, too, that by the same sphincter is regulated the quantity of water which shall enter for the supply of the respiratory and digestive systems, in accordance with their requirements, communicated in like manner, through the ganglion; and the ciliary movements would appear to be under the same control, (although not so in higher animals,) since in those beings which make use of them for the acquirement of food, such as the common wheel-animalcule, they stop and recommence in a such a manner as to prevent the observer from assigning any other cause to their variations.

FIG. 2.

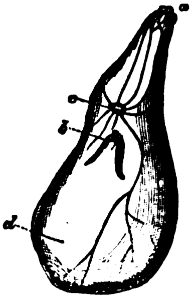

FIG. 2.—Nervous system of *Ascidia*: *a*, branchial orifice; *b*, anal orifice; *c*, ganglion; *d*, sac of the mantle.

In the *Conchiferous* Mollusca, we find the nervous system presenting a more elevated form, in accordance with the greater variety of the actions performed by the animals. In some of the lowest, however, as the oyster, the locomotive and sensorial powers do not seem much greater than those of *Tunicata*. The nervous system possesses but three ganglionic centres, of which the principal one is evidently the analogue of the single ganglion in the former class, being situated between the branchiæ, and supplying the whole respiratory apparatus. The other two ganglia are situated anteriorly. They lie beneath the entrance to the œsophagus; and, being connected by a transverse filament, which passes beneath it, as well as by an arch which passes over it, they may be regarded as constituting but one centre of action. The principal branches from these ganglia are distributed upon the sensitive tentacula, and upon the anterior portion of the mantle. They send two large trunks backwards towards the branchial ganglion; these, how-

FIG. 3.

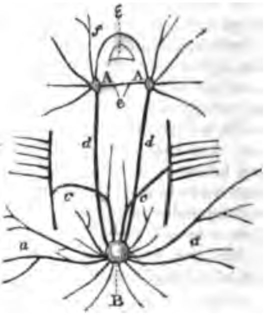

FIG. 3.—Nervous system of the *Oyster*: A, A, anterior or œsophageal ganglia; B, branchial ganglion; *a*, *a*, branches to mantle; *c*, *c*, branches to gills; *d*, *d*, connecting trunks; *e*, transverse filament uniting anterior ganglia; *f*, arch over œsophagus, E.

ever, do not seem to enter the substance of the ganglion, but rather to subdivide into branches, which accompany in their distribution those proceeding from the ganglion itself. The anterior ganglia, being alone connected with the special sensory organs, will obviously have a superior influence on the movements of the animal; and this they seem to possess by the distribution of their branches through the whole structure, whilst those of the branchial ganglion are confined to one set of organs. This last may be considered, however, from its size and connections, as the centre of the actions performed by the organs which it supplies, when these are stimulated by impressions made on, or originating in, themselves. Such would probably be the case with respect to the respiratory actions, which constitute a large proportion of the sensible movements of these animals. The whole course of their lives shews them to be so little elevated in the scale of psychical endowment, that we can scarcely regard the motions executed by them as often possessing a voluntary character; they may rather be compared with the involuntary or sympathetic actions of the higher classes. The closure of the shell, for example, which has been observed to take place when the shadow of a boat passes over an oyster-bed, resembles, in its *protective* tendency, the contraction of the pupil under the stimulus of light, or the closure of the glottis against irritating matters.

In the higher species of this class, we find a peculiar locomotive organ developed, which serves a variety of important purposes. This organ, which is termed the *foot*, has a firm muscular structure, and is capable of very energetic action. Sometimes it is employed in burrowing in sand or mud; and sometimes in executing sudden and rapid motions—true leaps, by which the animal is enabled to change its place with great celerity. These motions are frequently executed in such a manner as to imply consciousness of the most advantageous direction for them, and therefore the operation of a guiding *will*. With this organ, an additional ganglion always exists in close relation, being usually situated at its base, and following its changes of position, as well as corresponding with it in degree of development. This *pedal* ganglion is always connected, like the branchial, with the single or double cephalic ganglion; but the pedal and branchial ganglia are not connected with each other. This would seem to indicate that their functions are distinct, although partly under the control of the anterior ganglia. The influence of the pedal ganglion on the foot not improbably resembles that of the branchial ganglion upon the parts which it supplies. The general movements of this organ may be directed by the cephalic ganglia; whilst the particular adaptations by which it fixes itself upon a given surface, and adapts its disk to the inequalities which it encounters, may be produced simply by impressions reflected through this ganglion by its own circle of afferent and efferent nerves. Although such a view must be admitted to be hypothetical only, as regards this class of animals, it will be hereafter seen to derive remarkable confirmation from the actions of the suckers of the Cephalopoda in relation to their ganglia, and from similar experiments on the independent functions of the pedal ganglia in insects and other Articulata.

FIG. 4.

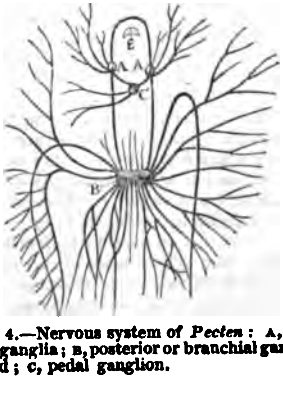

FIG. 4.—Nervous system of *Pecten*: A, A, anterior ganglia; B, posterior or branchial ganglion, bilobed; C, pedal ganglion.

FIG. 5.

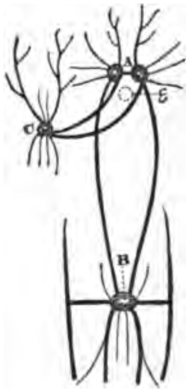

FIG. 5.—Nervous system of *Mactra*: A, A, anterior ganglia nearly meeting over œsophagus, ε; B, branchial ganglion; C, pedal ganglion.

In the next class of Mollusca, the *Gasteropoda*, we find a nervous system still formed upon the same type, but presenting a yet greater number of isolated centres. Although none of this class possess very active powers of locomotion, few are entirely fixed; all are more or less dependent upon the exercise of these powers for their supply of food; and the higher tribes employ them also in the perpetuation of the race, since the connection of two individuals is in them an essential part of this function. Although the foot is, as in the Conchifera, the chief instrument of locomotion, some of the naked aquatic species have other means of propelling themselves. These move through the water by the undulations of their whole bodies, like the leech, or the vermiform fishes; and a few appear materially assisted by an expansion of the mantle on the anterior part of the body, which contains muscular fibres, and seems to act as a fin. In every division of the animal kingdom, we find the development of special sensory organs to bear a close relation with that of the locomotive apparatus. In the present instance, we observe an evident example of this general rule. The organs of vision, which, when existing at all among the Conchifera, were very imperfect, are here almost constant and more highly developed; the tentacula are more sensitive, and are sometimes increased in number to six or eight; and there is reason to believe that some of them occasionally minister to the sense of smell. These senses, as well as the locomotive powers of the animals, have an obvious relation with the supply of the digestive system, which is not here, as in the inferior classes, dependent upon the miscellaneous aliments conveyed to the mouth by the movement of the surrounding fluid medium, but is more limited as to the character of the food to which it is adapted, and, consequently, requires the means of becoming acquainted with the proximity of what it can digest. It is not a little curious, however, that, although the general surface appears highly susceptible of impressions which excite responsive movements adapted to fulfil some important office in the economy, it does not seem to be susceptible of *painful* impressions in any thing like the same degree. This, which cannot but be regarded as a beneficent provision for the happiness of animals so incapable of offering any active resistance to injury, would appear from the observations of various experimenters, and especially from the testimony of M. Ferussac, who says, "I have seen the terrestrial gasteropods allow their skin to be eaten by others, and, in spite of large wounds thus produced, show no pain." This fact has an important bearing on our general views of the operations of the nervous system; since it would seem to confirm an opinion founded upon other phenomena, that the *impressions*, which produce reflex actions through the nervous system, do not always involve the production of *sensation*. Thus, cases of paralysis of the lower extremities have occurred in the human subject, in which no sensibility existed in the limbs, nor had the will any power to move them; yet irritation applied to the soles of the feet, of which the patient was not conscious, produced retractile movements in the legs. This question will be more fully discussed, however, in a future lecture.

The nervous system of the Gasteropoda consists of at least three distinct centres, the relative position of which varies with that of the organs which they supply. The *anterior* or *cephalic* ganglia are longer in proportion to the rest than in the Conchifera; and they exhibit a tendency to gain a position anterior to the œsophagus, and to approximate towards each other, so as to meet and form a single ganglionic mass on the median line. The *branchial* ganglion is constantly to be met with; but its position is extremely variable. This centre, however, always bears a close relation with the gills, both in situation and degree of development; and even where conjoined, as it frequently is, with the *pedal* ganglion, it may be distinguished from it by the distribution of its nerves, as well as by its separate connection with the cephalic ganglia, which is always noticed in such cases. This may be observed in the *patella* (limpet) and *limax* (slug). Sometimes the functions of this ganglion are subdivided between two, of which one is still appropriated to the branchia, whilst the other is connected with the general surface of the mantle, and with the respiratory passages which are prolongations of it, and hence may be called the *palleal* ganglion. The position of the *pedal* ganglion (which is generally double in the Gasteropoda, though the foot is single), also varies, but in a less degree, since it is generally in the neighbourhood of the head. Besides these nervous centres, we find, in many of the Gasteropoda, a separate system connected with a very important set of organs, the gustatory and manducatory, which are but slightly shadowed out among the Conchifera. In these higher tribes we find the œsophagus dilated at its commencement into a muscular cavity, with a curious rasp-like tongue, which serves to reduce the food, often supported upon cartilages, and sometimes furnished with horny maxillæ. The nerves which supply these do not proceed directly from the cephalic ganglia, but they are a part of a distinct system, which sends its ramifications along the œsophagus and stomach, and which is occasionally connected with the first by inosculating filaments. This set of ganglia and nerves, which is even more important from its relative development in some other classes, and into the analogies of which in the nervous system of Vertebrata we shall hereafter inquire, may be called, from its distribution, the *stomato-gastric* system.

The manner in which the cineritious

matter of the ganglia of the Mollusca is disposed, in reference to the nervous fibres which stand in relation to it, at once distinguish these centres from the ganglia of the sympathetic nerve of Vertebrata, or of the posterior roots of the spinal nerves, with which they have been sometimes compared. In the latter we observe the fibres *continued through* the ganglia, and the grey matter interposed amongst them. In the former, the grey matter is confined to the centre, and is *not traversed* by fibres; and the roots of the nerves which terminate in the ganglion are observed to penetrate to it, and then to diverge, becoming, as it were, lost in its substance; and this is alike the case with what are believed to be, from their connections, both sensory and motor nerves. This structure obviously resembles, therefore, that of the centres of the cerebro-spinal system in Vertebrata; and these ganglia may be regarded as corresponding with those parts of the nervous centres in the Vertebrata, the distribution of whose nerves is analogous. Thus the *branchial* ganglion obviously corresponds with that portion of the medulla oblongata which is the centre of the respiratory actions in Vertebrata. The *pedal* ganglion is analogous to that division of the spinal cord from which the nerves of the anterior or posterior extremity pass off. It is well known that such portions of the spinal cord may be completely isolated, without destroying the functions to which they minister. Thus, the brain and lower part of the spinal cord may be removed,—that portion only of the cerebro-spinal axis being left, which connects the principal respiratory nerves, in fact the *respiratory ganglion*,—and yet the animal may continue to exist for some time. It is then reduced to a condition similar to that of the Tunicata, whose single ganglion, though combining in some degree the functions of those which exist separately in the higher tribes, has evidently the regulation of the respiratory movements for its chief object. In the same manner, the integrity of the segment of the cord with which the nerves of the extremities are connected, will enable them to execute those movements of a reflex character, which depend upon its power as their centre, even though it is isolated from every other part of the nervous apparatus. The *cephalic* ganglia must be regarded as analogous, not to any single portion of the encephalon in Vertebrata, but in some degree to the whole. We find nerves of special sensation proceeding from them, certainly to eyes, perhaps also to olfactive organs; as well as others of special sensation, supplying the tentacula and mouth. Hence we must admit, that they perform the functions of the optic ganglia of Vertebrata, and perhaps also of the olfactory lobes; as well as of the portion of the medulla oblongata in which the sensory portion of the fifth pair terminates. Moreover, they certainly give origin also to motor nerves, and must thus perform the functions of the medulla oblongata, from which the corresponding nerves arise in Vertebrata, as well as, perhaps, of the cerebellum. And, if we regard these animals as enjoying the perceptive, reasoning, and volitional faculties, in however low a degree, we must attribute to their cephalic ganglia some portion of the attributes of the cerebral hemispheres in the highest classes. This combination of function will not appear so extraordinary, when it is recollected that *all* the central operations of the nervous system are performed in the Tunicata by *one* ganglion, and in the Radiata by a series, of which each is but a repetition of the rest; and it is quite conformable to the general principle of the *gradual specialisation* of function, which may be observed in ascending the scale of organisation.

It is obvious that the portion of the nervous system of the Gasteropod Mollusca, into the analogies of which we have thus inquired, cannot in the least be compared *as a whole* with the *sympathetic* system of the Vertebrata, which it was formerly imagined to resemble. The distribution of some of its nerves to the viscera, however, may indicate that it partly performs the functions of that system, with which it is structurally intermixed, even in Vertebrata, as the late inquiries of Müller and others (of which the results will hereafter be stated) have shewn. But the stomato-gastric system may, perhaps, with more probability be considered as executing its offices. Into the peculiar character of that system we shall be more competent to inquire when we have traced it through other classes of Invertebrata.

Having thus separately considered the nervous centres of the Gasteropoda, and determined their special functions by their structural relations, we shall inquire into the mode in which these functions are combined, so as to enable them to act in harmony. This is an inquiry of much interest in reference to the determination of the offices of the different parts of the nervous centres in vertebrated animals. If we examine the mode in which the different ganglia are united by connecting trunks, we are led to perceive the important fact that, while they have little or no communication with each other, they are all directly connected with the cephalic ganglia, which seems thus to harmonize and control their individual actions. Frequently such a communication with one another appears to exist, where there is really none. Thus, in *Aplysia*, a cord passes from the branchial ganglion, which is situated in a posterior part of the body, to the pedal ganglion. Where such is

Fig. 6.

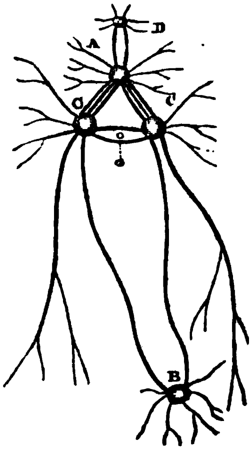

Fig. 6.—Nervous system of *Aplysia*: A, cephalic ganglion; B, branchial ganglion; C, C, lateral ganglia, combining the functions of pedal and palleal ganglia; D, pharyngeal ganglion.

the case, the trunk is not united with that which proceeds from the ganglion through which it passes; but the two remain distinct, though running in the same direction. Moreover, the double function of a ganglion may be sometimes recognized by its being connected with the cephalic mass by a double trunk. Thus, in the Aplysia, that which has been termed the *pedal* ganglion is really made up of a pedal and palleal ganglion, as is proved by the distribution of its branches; and in conformity with this double function, we find it communicating with the cephalic mass by two cords, besides the one which has been just mentioned as passing through it, and which appears as a third. In *Bullæa*, whose nervous system is disposed on the same general plan, the pedal and palleal ganglia are separately connected with the cephalic; the cord from the branchial ganglion passing through the palleal. These facts have been noticed by anatomists; but it has not been until recently that the physiological explanation of them has been given.

Further, a careful examination of these ganglia, and of their connecting cords, discloses this important fact, which is peculiarly evident in the case of the pedal ganglia—that the cord does not lose itself in the grey matter of the ganglion, but divides itself into filaments, which mix with those proceeding from it, to form the nervous trunks which it distributes. We can scarcely, then, fail to infer that the pedal ganglion, with the nervous fibrils proceeding from it, is the source of the reflex actions of this organ; whilst the filaments which are continuous with those of the connecting trunk, and which are thus in relation with the nucleus of the cephalic ganglia, are the channels of sensory impressions, and of the motor impulses of volition. This is well illustrated in the very curious disposition of parts which we find in the arms of the cuttle-fish. These are provided, as is well known, with a series of suckers, which are important instruments of locomotion and prehension to the animal. It has been observed by Dr. Sharpey, that the nerves which supply these arms are provided with ganglionic enlargements, of which one corresponds with each sucker; and that each trunk consists of two tracts, in one of which the ganglionic enlargements exist; whilst the other passes continuously over these, but sends off nervous filaments, which help to form the branch going to each sucker. It has been supposed that the white or fibrous tract is the motor portion, and the ganglionic the sensory; but this is inconsistent with the facts known regarding the influence of the nerves upon the movements of the suckers. When the animal wishes to embrace any object firmly with its arm, it brings all the suckers simultaneously to bear upon it. There can be little doubt that this action is occasioned by a motor impulse, propagated from the cephalic masses by the non-ganglionic portion of the cord, which supplies all the suckers alike. On the other hand, any individual sucker may be made to attack itself by placing the substance in contact with it alone; this action is independent of the cephalic ganglia, as is evident from the fact that it will take place when the arm is severed from the body, or even in a small piece of the arm, if recently separated; and it can scarcely be doubted that it is due to the reflexion of the impression made upon the sucker, through the small ganglion in its neighbourhood, where it excites a motor impulse. The operation of these independent centres appears, in the entire living animal, to be controlled, directed, and combined, by the cephalic ganglia, through the medium of the fibrous band that passes over them, and mixes its branches with theirs. A very similar arrangement will be hereafter shown to exist in the double nervous column of the Articulata.

From the Gasteropod Mollusca we might pass to the class Cephalopoda, which is a most interesting one, in many respects; exhibiting to us the modification of the molluscous type (which is, perhaps most characteristically presented in the Gasteropoda), occasioned by their proximity to the Vertebrated division of the animal kingdon. In no organs is this modification more evident than in the nervous system; for, whilst in the lowest members of the group we find it approximating closely to the form it presents in the higher Gasteropods, its whole character and relations in the more elevated species are so like those which exist in the lowest Fishes, that the analogies between their several parts may be traced with little hesitation. Into details on this subject, however, it does not suit our present purpose to enter, as little new information can be derived from it in illustration of the general functions of the nervous system.

CASE OF
RUPTURE OF THE FALLOPIAN TUBE
FROM ACCUMULATION OF THE CATAMENIAL FLUID.

To the Editor of the Medical Gazette.

SIR,

THE following are my notes of the case of rupture of the fallopian tube from accumulation of the catamenial fluid within the cavity of the uterus, to which reference was made by my friend Dr. Moore, in the conversation which ensued upon the reading of Sir Benjamin Brodie's "Account of two Cases of Imperforate Hymen," before the Royal Medical and Chirurgical Society, on the evening of the 9th of the present month. (See MED. GAZ. vol. xxvii. p. 810.)

Early on the morning of Tuesday, Oct. 24, 1837, I was requested to visit R. S. æt. 18, who, on my arrival (about an hour subsequently), was evidently *in articulo mortis*. Her pulse was barely perceptible, but extremely rapid; the skin was covered with a cold and clammy perspiration; there were low muttering delirium; tracheal rattle; the facies Hippocratica; and a continual involuntary discharge of the alvine contents. She died in a few hours.

Upon making some inquiries into the history of the case, I was informed that she had never menstruated; that about eighteen months previously, when the evolution of the external organs of generation and of the mammæ rendered probable the speedy appearance of the catamenia, she suffered from headache, pains in the back and limbs, cold extremities, and a heavy dragging sensation in the pelvic region, with some bearing down pains. These symptoms, after a brief continuance, subsided, but returned in five or six weeks; again ceased, and then returned after a shorter interval. This state of things continued for three or four months, the symptoms upon each recurrence remaining longer, and becoming more urgent, whilst the intermissions became shorter in duration, and less perfect; so that at last there was no intermission, but manifest exacerbations occurring every fourth or fifth week.

In January, the lower part of the abdomen began to swell; a deep-seated tensive pain was felt in the pelvis; all her symptoms were aggravated, and there was in addition occasional vomiting. She still, however, kept about her usual employment, and took, by the direction of a neighbouring practitioner, some medicines, which, from the description given, I presume consisted either wholly or in part of iron. Under this treatment she got rapidly worse. On Friday the 20th, when stooping, she felt, to use her own expression, something give way within her; and the swelling of the abdomen appeared to subside, as did likewise the dragging and tensive pain above mentioned. Towards evening she complained of diffused pain of the abdomen, which, by Saturday, had so far increased that she was unable to bear the slightest pressure. There was great heat of skin, headache, knees flexed upon the abdomen, some difficulty of breathing, contracted state of the features, nausea and vomiting, with difficulty of, and intense pain over the abdomen, on emptying the bladder. This condition continued until Monday, when she passed gradually into the state in which I found her on the Tuesday morning.

Autopsy twenty-six hours after death.—On laying open the abdomen, I was surprised to find a large quantity of a dark red and thickish fluid (somewhat similar in appearance to blood, which had been for some considerable time effused) lying in the cavity of the peritoneum, and amounting, I should imagine, to twelve or fourteen ounces. The peritoneum, which was every where in contact with it, was stained of a reddish colour. On wiping away the fluid with which it was covered, there was an evident increase of vascularity, and in some parts the membrane was covered with a thin layer of coagulable lymph. I searched for the source of this sanguiniform fluid, but for a considerable time without effect. The uterus at length attracted attention; it was considerably larger than the ordinary size of a man's fist, but, nevertheless, flaccid. Upon opening it, I found four or five ounces of a similar fluid to that in the abdomen, contained within its cavity. The fallopian tubes were enormously distended; so much so that I could with ease pass the little finger into them. Close to the fimbriated extremity of the left tube there was a fissure about two lines in length, with ragged edges, thus forming a free communication from the cavity of the uterus to that of the peritoneum: through this the fluid in question had evidently passed. The lining membrane of the uterus was of a slightly reddish colour, depending, as I imagine, on its contact with the contained fluid. On pursuing the examination, I found an obstruction to the passage of the finger or probe through the vagina. This was caused by the apposition of the walls of the canal, and their junction by firm cicatrization. This cicatrix was from half an inch to an inch in length, and contained a hard tough substance in many respects resembling cartilage. I could find nothing at all resembling the hymen.

Of the many interesting points presented in this case, there is but one upon which I shall here make any comment, viz. the period which elapsed between the rupture of the tube and the death of the patient. It is stated by the most esteemed practical writers on the diseases of the abdominal viscera, that peritonitis from extravasation of foreign matters into the cavity of the peritoneum proves generally fatal in a period varying from eighteen to thirty-six hours. That this statement is applicable to the great majority of cases will not, I think, admit of doubt; and if so, how is the diversity observed in the above instance to be explained? May it not have reference, in some measure, to the nature of the effused fluid; or does it receive a more probable explanation from the situation whence the foreign matter proceeded? The few cases of peritonitis consequent upon irritating substances in its cavity, which have come under my observation, either as student or practitioner, seem to show that death results more rapidly according as the exit of the foreign matter be higher up in the abdomen. The effects of opium in procrastinating or averting death—and in cases like these they are great—could not here have contributed to the result; for a blister to the abdomen, and saline mixture, constituted the entire of the treatment which had been adopted.—I am, sir,

Your obedient servant,
William Munk, M.D.
Physician to the Tower Hamlets Dispensary.

2, Finsbury Place South,
Feb. 20, 1841.

ON THE USE OF OILED SILK.

To the Editor of the Medical Gazette.

Sir,

I wish to register in your valuable columns my testimony in favour of oiled silk in surgery, and to acknowledge my gratitude to Dr. Macartney, for having first recommended to me an expedient, the value of which I have since proved, both in military and civil practice.

As it would be endless to enumerate cases, I shall briefly state the mode of application, and the result in ulcerated legs. When the skin surrounding the ulcer is inflamed, I immediately use the polytome, and encourage the bleeding by warm water, and afterwards apply dry lint, which I accurately cover with oiled silk, kept in its position by a bandage nine yards in length, from the toes to above the calf. The next day, on removing it, the lint is found moist with discharge and vapour from the ulcer; the inflammation appears much abated; the patient generally expresses relief from pain, and walks better. If the sleep be disturbed, I prescribe calomel and opium at bed-time, aperients the following day, a solution of cream of tartar for ordinary drink.

In most instances I have found it better to use the dry lint than the water dressing.

When the graduated pressure of the bandage, and the discharge of blood and matter, have reduced the swelling, with a feather I apply astringents, *e. g.* varied solutions of nitrate of silver, to the ulcer and adjacent skin. The detaching of sloughs is to be excited by the solution of one drachm to an ounce of distilled water; the lint and oiled silk to be continued. In a few days the skin and subcutaneous tissue become indurated from deposited lymph, when the absorbents should be excited by iodine ointment, which I have also found beneficial in allaying the itching pustules infesting the skin after the ulcer is healed.

I substitute compound tincture of iodine for nitrate of silver, when the ulcer is of impetiginous origin. It is almost unnecessary to remark, that if varicose veins be the exciting cause, constant support is indicated; and should there be any internal derangement, counter-irritation is to be applied over the diseased organ. Should the ulcer be attributable to scrofula, I have prescribed hyd. c. cretâ, with pulv. cinchonæ, followed by a course of iodine.

When a sinus exists, it is often obliterated by the application of caustic to the skin over it.

I may here remark, that, in cases of ophthalmia, the blue or green oiled silk forms a good covering for the eye, keeping it moist and warm, admitting an agreeable light, and excluding dust, &c.

The French oiled silk is preferable to the English, as it is finer.

I am, sir,
Your obedient servant,
ALEX. LEIGH, A.B. M.B.

3, Olympic Place, Jersey,
Feb. 21, 1841.

CASE OF

SIMPLE DISLOCATION FORWARDS OF THE HEADS OF THE TIBIA AND FIBULA.

To the Editor of the Medical Gazette.

SIR,

AMONG several useful purposes which such a journal as that which you edit serves, one is to provide an opportunity of publishing authenticated reports of single cases of rare occurrence. Permit me to send you an additional contribution of this kind.

— Enright, aged 65, of a spare habit, but hale and ruddy complexioned, by employment a stone-mason's labourer, was stooping to clear away some rubbish beneath a portico that was just completed, when the stone forming the architrave, weighing towards seven hundred weight, broke in two, and falling upon him bore him to the ground. His right hand was jammed under one fragment, which it was necessary to lift to extricate it. He could not stand for the shock, and some injury to the left knee. The accident happened about half-past five P.M., on the 23d of February; he was shortly after brought to the Middlesex Hospital. I saw him between six and seven.

The first impression, on looking at the injured knee, was that the femur was broken immediately above the condyles, where there was a considerable depression, and there seemed to be motion. But upon a closer examination the femur proved to be entire, the depression being caused by the head of the tibia overlaying that bone. The condyles of the femur, the outer stretching the skin very tensely, were to be felt behind the upper ends of the tibia and fibula, the extremity of the condyles being fully four inches below the level of the articular surface of the tibia. The position which the displaced bones assumed was that of slight flexion. The pulsation of the anterior tibial artery on the instep could not be felt.

Two brief and ineffectual attempts were made by hand to reduce the dislocation, keeping the bones slightly flexed. Then a round towel was passed within the limb, to get a purchase upon the ischium and pubes; this was fastened to the irons of the head of the bed. Another round towel was secured by a clove hitch upon the malleoli and instep. Using these means, direct extension was made upon the leg, and in about a minute the reduction of the dislocation was accomplished. The limb was then laid straight upon a pillow, and supported laterally by junks.

Upon examining the hand, finding three of the fingers crushed, the flesh of the thumb deeply lacerated, and the skin torn off the whole dorsal surface, I amputated it above the wrist. The patient's progress has been in every way favourable. Some swelling and pain there was of the knee-joint forty-eight hours after the accident, for which twenty leeches were applied; but there is no pain now unless the joint is moved; and the swelling has disappeared.

This is the only case of simple dislocation of the head of the tibia forwards that I have witnessed. I saw, some years ago, with Mr. Andrews, of Stanmore, a young gentleman who, a few days before, had suffered simple dislocation of the head of the tibia backwards, which Mr. Andrews had reduced. He had used direct extension, and had found considerable force necessary. The accident had happened in the following manner. The young gentleman was riding a pony on the common, and meaning to pass a tree that stood in his way on one side, when the pony swerved, and carried him by on the other side of the tree, which took the tibia, and forced it backwards, dislocating it behind the femur.

In the case which I have narrated, it is to be supposed that when the unfortunate man was borne down by the mass of stone, his leg, with the knee straight must have been stretched obliquely forwards, and the foot have been fixed against some object, when the strain falling on the crucial ligaments, tore them through, when the condyles of the femur would have been forcibly driven behind the tibia and fibula.

I am disposed to mention, as connected with the subject of dislocation, a simple contrivance, perfecting the commonest apparatus for reducing dislocations of the hip, which I have recently had put up at the Middlesex Hospital.

There was in the room destined for this purpose a ring let into the floor; and opposite to it, at twenty feet distance, was an upright iron bar, fixed by its ends into the wall, having catches at different heights adapted to the hook of a set of pullies. The patient being laid upon a common iron bedstead placed lengthways between the ring and the vertical bar, the two latter furnished points of attachment for making horizontal extension of the thigh. What I have added is an horizontal bar running below the ceiling of the room, the ends being attached to the joists of the floor above. This bar is parallel to a line joining the ring and vertical bar just described. It therefore allows the hook of another set of pullies to hold to it, and so affords the means of making a strain upon the dislocated femur, transverse to the axis of the limb, simultaneously with the longitudinal strain.

I am, sir,
Your obedient servant,
Herbert Mayo.

19, George Street, Hanover Square,
March 2, 1841.

OXALIC ACID ACCIDENTALLY SWALLOWED IN AN EFFERVESCING DRAUGHT.

To the Editor of the Medical Gazette.

Sir,

I beg to send you the accompanying notes of a case of accidental swallowing oxalic acid in an effervescing draught, in mistake for tartaric acid. Should you deem it of sufficient interest to obtain a place in your valuable journal, your inserting it will oblige

Your obedient servant,
T. H. Babington, M.B., T.C.D.
Licentiate of the Royal College of
Surgeons in Ireland.

Coleraine, Ireland, Feb. 17, 1841.

Marg. ——, æt. 24 years, had taken an effervescing draught, composed, as she imagined, of carbonate of soda and tartaric acid. On swallowing the draught in a state of effervescence, she felt a strong acid burning taste in her mouth, which immediately attracted her attention to the ingredients she had used in preparing the draught: she showed the substance which had been used for tartaric acid to her mistress, who immediately suspected that oxalic acid had been sent her in mistake for tartaric acid*. Acting under this suspicion, she administered a large draught of tepid water (which acted as an emetic) and sent for medical assistance.

May 3d, 1837; noon.—On my arrival, I quickly recognized the suspected substance as being oxalic acid, and ascertained that a tea-spoonful (about two scruples) had been swallowed in combination with the carbonate of soda. I immediately had recourse to a strong solution of tartrate of antimony, which fully evacuated the contents of the stomach, and ordered her to take two table-spoonfuls of chalk mixture every fifteen minutes.

2 o'clock, P.M.—Has taken fourteen ounces of chalk mixture. Feels very cold and weak; pulse quick and feeble; complains of a hot sensation in fauces and œsophagus. Ordered to apply dry

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* It is to be remarked that the soda and acid had been purchased from a grocer: hence the occurrence of the nearly fatal mistake. Throughout the north of Ireland, medicines, poisons, &c. are sold by grocers, and other uneducated persons, from whom they are readily purchased; a practice much to be reprobated, and which demands legislative interference.

heat to extremities, epigastrium, and axilla, and to continue the chalk mixture every half hour, with a draught composed of spirit of ammonia, tincture of opium, and cinnamon water, to be taken immediately.

10 o'clock, P.M.—Has had spasmodic pains in her stomach, left side, and along the colon; also numbness and a pricking sensation in her back and along her left thigh. Is thirsty. Burning pain at epigastrium; no tenderness on pressure, nor vomiting; pulse 86, weak and tremulous. Ordered a full opiate, and a castor oil draught early in the morning.

4th, 10 o'clock, P.M.—Rested badly; was delirious in the night; complains of headache; throbbing of temples. Pulse 80; mouth and fauces red and painful; no uneasiness in the stomach or bowels since the operation of the castor oil. Ordered cold lotion to the temples.

10 o'clock, P.M.—Has been very weak, nervous, and excitable, during the day; fainted once; headache better; no pain in stomach. Ordered an opiate draught.

5th, 10 o'clock, A.M.—Slept badly; disturbed by spasmodic pains in bowels, and an unpleasant tingling sensation along the spine and anterior part of thighs. No tenderness of epigastrium, but taking food causes much uneasiness; complains of headache. Ordered an ounce of castor oil.

10 o'clock, P.M.—Feels better since the oil operated. Ordered an opiate draught.

6th.—Slept well last night; pulse 76, regular; bowels free. Ordered gruel for dinner.

7th.—Complains of weakness; slept badly, not having had her opiate.

8th.—Complains of weakness in stomach: want of appetite, and acid eructations, now felt first time. Ordered compound infusion of gentian, with bicarbonate of soda.

10th.—Convalescent. Under the use of the bitter infusion, and an occasional aperient, her appetite and strength gradually returned; but a considerable time elapsed before she was able to resume her duties as a servant.

A few observations may be offered on the above case. All writers on the subject of poisoning by oxalic acid justly condemn the administration of warm water with a view to producing vomiting. In this case it was given by a non-professional person, and very fortunately produced vomiting: on my arrival I followed up this treatment with solution of tartrate of antimony, which more freely emptied the stomach. Some may conceive that this was not the safest emetic medicine I could have used, as its depressing powers might accelerate the absorption of the poison. Others may imagine that the stomach-pump might have been had recourse to with benefit. To the former I can say, tartarized antimony was used as being nearest at hand, and valuable time would have been lost in procuring other substances. In reply to the latter, Dr. Christison says, "I cannot see any use in using the stomach pump in cases of poisoning from oxalic acid." Whilst the emetic was operating I was preparing the chalk mixture, the use of which would neutralize any acid which might remain in the stomach; after which, heat was applied to the extremities, and a stimulating draught exhibited.

Although the symptoms were in this case of a mild nature, still they were strongly enough marked to shew the deleterious effects which even so small a quantity of oxalic acid is capable of causing, even in a case where it remains so short a time in the stomach as in the present case.

In the case before us the most striking symptoms were depressed circulation, followed by considerable and marked derangement of the nervous system*. Dr. Christison, in his valuable work on Poisons, alludes to a case recorded by Dr. Scott, of Cupar, in which nervous symptoms very similar to those I have detailed, occurred, and precisely about the same time. On the morning after swallowing the noxious substance, both, it appears, were similarly affected by weakness, numbness, and peculiar uneasy sensations in the back and legs.

From the symptoms in the case detailed, I think it would appear that this poison (when taken in a dose not sufficient to cause instantaneous death) acts first by depressing the circulating system, into which it is no doubt rapidly absorbed, and then acts through the circulation on the brain and nervous system. I arrive at this conclusion from observing that, at 2 o'clock on the day on which the acid was swallowed, we found weak pulse, cold extremities, &c.; and the next morning we observed the supervention of what may be called decided nervous symptoms, and these symptoms again returned on the 5th, the second day after swallowing the poison; thereby proving that the deleterious substance had exerted a powerful influence on the brain and nervous system generally.

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* The symptoms as detailed in the above case derive additional interest when compared with Mr. Jackson's case of "Poisoning with Binoxolate of Potash," as detailed in the MED. GAZETTE of the 18th of December, 1840.

ILLUSTRATIONS OF THE PATHOLOGY AND TREATMENT OF THE AMAUROSES.

By Edward Hocken, M.D.

(For the London Medical Gazette.)

AMAUROSIS FROM CEREBRAL AFFECTIONS.

I shall not, in the present paper, discuss all that belongs to this head, but narrate two cases, one commencing after fever, the other a well-marked example of organic disease. Various imperfections or losses of vision, conditions of the pupils, of the lids, and eyeball, occur as prominent and highly important symptoms in the progress of many, and even diametrically opposite conditions of the brain or its membranes: in cerebral congestion, or in anæmia; during the progress, or as a result, of inflammation of the brain or its membranes; from injuries with or without compression; from organic changes and diseases of the most opposite characters; affections of the brain, &c.; during the progress of other diseases, during and after apoplexy, convulsions, &c.

The following case came on after a severe attack of the petechial or typhus fever, during the progress of which he remained insensible for some days, with a slow and imperfect subsequent convalescence:—

Complete amaurosis of both eyes; loss of the sense of smell; impairment of hearing, speech, intelligence, and memory, with severe and continued headache.*

William Saunders, admitted at the West of England Eye Infirmary on the 23d of March, 1840. He is 21 years of age, a shoemaker, short in stature: his countenance pale, deficient in expression, but somewhat anxious, presenting the appearance of suffering from pain. The history we gained from his mother, who attended him, was, that in Nov. 1839, he had suffered from a severe illness, typhus fever, with an eruption of purple spots, during the continuance of which he had suffered severely from his head, and had been insensible for some days, and that his convalescence from the fever had been very slow and imperfect. Previous to this date he had always enjoyed good health. His sight had been impaired ever since his recovery from the coma, when he complained of much impaired vision and dark bodies flitting before the eyes: this had continued to increase to the present time, May 25th, 1840, attended by headache, &c., the vision being then entirely lost.

Symptoms.—Countenance highly vacant, but expressive of suffering; the eyeballs roll perpetually, and are not directed to any object or person when he is spoken to: this constant rolling or oscillatory motion came on with the amaurosis, and has increased proportionally: the globes themselves appear natural: the pupils of both eyes are widely dilated, and possess no motion whatever in either eye by alternations of light and shade, whether one be closed and the other examined, or both be left open, and each tested alternately.

He states that both eyes are equally blind; that his vision is so imperfect that he is unable to distinguish night from day. "I can," he says, "see as well with the eyes shut as open." He complains of fixed and severe frontal cephalalgia, pain over the brows, almost always present, but occasionally aggravated in paroxysms, and that during these severe attacks he is affected with nausea; when very excruciating, even actual vomiting. His general health is otherwise tolerably good; his appetite regular, his tongue clean, and the secretions and excretions normal. The sense of smell is completely lost, whilst false and disagreeable sensations have supplied its place: thus, he often imagines that he is in the proximity of the most disgusting and fœtid effluvia. The hearing is very imperfect, so that he requires to be spoken loudly to before he is conscious that any one addresses him; and his mother states that he becomes quite deaf when he suffers from sore throat, with which he has been attacked several times of late. His memory is very imperfect; indeed he seems to remember scarcely any thing; he has forgotten the names and application of many things, and his other intellectual faculties are blunted in a similar manner, so that he is not adequate to the slightest bodily or mental exertion. His headache is invariably increased by long sitting, the recumbent posture during the day, stimulants and food, especially dinner; he often complains of vertigo, and weakness in his limbs. His speech is occasionally imperfect from a want of memory. "He has often," says his mother, "a catch in his speech."

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* The plan adopted in taking these cases was, first, to learn as much as possible of the patient's previous history; secondly, to inquire into his preceding and incipient symptoms, then to learn all that he knew of the predisposing and exciting causes. The present symptoms were arranged into objective and subjective; viz. local appearances and changes; secondly, sensations and functions. The constitutional into febrile and sympathetic conditions—the state of the vascular and nervous systems. Then an attempt was made at diagnosis, and the ascertainment of the pathology. From this was gathered the indications for treatment. The extent and progress of the case was included under the progress, results, and terminations of symptoms, the general and local effects of treatment, and the mode and peculiarities of the employment of remedies.

The mother attributed the attack of fever (as most persons do where the exciting cause is not obvious) to an accidental chill, which the patient received during his usual employments, since he was quite well before, and became ill almost directly afterwards.

There are no symptoms of fever present: the pulse is quiet and natural, the tongue moist and healthy, with diminished sensibility of the general nervous system.

Diagnosis.—The diagnosis from these symptoms was "amaurotic blindness of both eyes from cerebral disease—probably chronic inflammation and results—deriving its origin from fever, with severe vascular disturbance within the cranium."

Such being the diagnosis, the indications for treatment are evidently here to be directed to the condition of the parts actually diseased — the pathology of the amaurosis. Absolute rest of mind and body, a mild, continued, constitutional action of mercury, slight purgation, rigid attention to diet, continued counter-irritation, coolness of the head, and warm stimulating pediluvia, were, on these grounds, directed. The mouth was kept slightly sore by five grains of blue pill alternate nights, and the bowels relaxed by an occasional pill of the compound extract of colocynth with one-twelfth of a grain of tartar emetic.

He presented himself again on the 13th and 27th of April, and on the 4th and 25th of May, and was ordered to persevere in the remedies and regimen, as no material alteration occurred in the symptoms; the general health improving slightly, and the sight continuing much in the same condition.

On the 29th of June the blue pill was changed for the Pil. Hyd. Chlorid. Comp.; and the colocynth for the compound rhubarb.

The treatment which had been adopted before this patient applied, according to his own account, was antiphlogistic in the first instance, that this was subsequently changed for the regular employment, first of electricity, and then galvanism, with some apparent benefit at the time, but with aggravation of his symptoms subsequently.

After this period the patient became so ill that he was unable to attend, and I am therefore unable to trace his further history, and, as so commonly happens, unacquainted with the post-mortem appearances connected with these symptoms. It, however, furnishes a good history of the case as far as such cases can be traced usually at public institutions of this kind.

Remarks.—Here is a case in which the perpetual rolling or oscillatory motions of the globes came on with amaurosis of both eyes so severe that he could not "distinguish night from day," in an adult, from cerebral disease. Such must be very rare; I have never seen or heard of any other similar case. Indeed, the usual explanation of the symptom is that it results from the eager search after light in an individual who has never perfectly enjoyed vision: hence it is almost sure to be present in cases of congenital cataract, or imperfect forms of congenital amaurosis; but the eye-ball does not acquire this restless motion when the sense of vision is completely absent. The cerebral disease was most probably not ramollissement, in which the progressive destruction of the cerebral matter is marked by a gradual and extending weakness, involuntary spasm, and then paralysis of the muscles, beginning with the lower extremity—not inaptly denominated creeping palsy. There was no fever present; but this is by no means a constant symptom of the progress and results of chronic inflammation within the cranium, affecting portions. Chronic inflammation, affecting a small portion of the brain or its membranes, presents a great diversity in duration, continuance, symptoms, effects, and mode of termination;* in many cases passing into, and not distinguishable from, organic diseases of the same parts. If any reliance is to be placed in symptoms, this was most probably a case of this nature. The intellectual powers and the senses were the functions mainly interfered with, whilst the muscles were neither paralysed, convulsed, nor affected with spasm: he complained only of weakness in the limbs; but no practical deductions of the seat of the disease can be drawn from such data. Nothing peculiar could be made out concerning the amaurosis, save that it had increased gradually, and was accompanied by muscæ volitantes, both eyes suffering equally and conjointly. The continuance, the severity, and the aggravation of the headache, was characteristic.

Headache; amaurosis of both eyes; strabismus of the left; imperfection of hearing, and weakness of the muscular system.

James Newberry is a shoe-maker, twenty-five years of age, of a dark complexion, tall and thin; he professes himself to have been of regular and healthy habits. His present disease came on about two years since, and without, to his knowledge, any obvious exciting cause. At that period he began to experience severe pain in his head, which most frequently affected the back part, but was sometimes situated in the forehead, or seemed to dart from behind forwards; this was wont to continue a considerable part of the day. It came on at irregular intervals, and not at any specified time, was aggravated in very severe paroxysms, and always increased by food and stimulants. When very severe, these paroxysms were attended with nausea and vomiting; but the appetite and digestion were usually good, and the functions of the intestinal canal regular. These symptoms, with the omission of the sickness, have continued to the present time (August 1840). Various new indications of cerebral disturbance have lately developed themselves, synchronously with the increase of disease: great weakness of the muscular system generally, so that he states himself "not steady on his legs," but without any other paralytic tendency; the sense of hearing has failed gradually, but is by no means lost, as he understands perfectly when addressed in a loud, clear key; the smell, also, is little if at all affected.

He was quite unconscious of any derangement of vision till about four months since* (May), when, after bleeding nearly to syncope, on opening his eyes he found that of the left entirely lost. The amaurosis of the left organ was complete, and has still continued so: the vision of the right has failed gradually since the left eye became thus affected. Shortly afterwards he discovered that the left eye-ball was not directed normally, and, by degrees, it was turned completely out of the axis of vision.

September 1840.—Strabismus convergens exists at present in both globes, but by far to the greatest degree in the left. The eyes are apparently thrust forwards, rendering them preternaturally prominent; the irides deprived of their healthy brilliancy, of a dark dirty green colour; both pupils dilated, and completely motionless in the left: there is a preternatural vascularity, but the fundus of either eye, as seen through the dilated pupils, appears dull and slightly opaque.

He complains of some degree of tension in the globes, misty distorted vision in the right eye, complete amaurosis of the left, the occasional perception of undefined muscæ or more luminous objects. The vision of the right failed gradually, and at first he was much more troubled with these appearances; objects also being occasionally seen double—one much more defined than the false perception, less circumscribed than the true; so that he was always conscious which was true, which false. His general health is tolerably good, but he is nervous and excitable; debilitated, but without paralysis: there is no fever present, and the vascular system is undisturbed. His pulse was rather slow and full.

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* Vide Abercrombie's Practical Researches, p. 118, edit. 3d.

* Great caution is requisite in entirely crediting the accounts of patients about the sudden occurrence of blindness, since it may have existed long before, and yet not have been discovered from want of observation and comparison.

The usual treatment failed to procure any favourable indications; his symptoms have continued to increase, and no doubt can now exist of an unfavourable termination: should such be the case, and an opportunity be afforded for pathological examination, I trust to give the appearances at some future period.

Remarks.—This presented the characteristic, continued headache, of organic cerebral disease, and well-marked diagnostic symptoms from cephalalgia dependent on deranged digestion; it exhibits also the great sympathy which exists between the brain and stomach, since when the paroxysms of headache were most intense nausea and vomiting were produced: this is quite usual. Where both eyes are affected, as in this case, we find that one suffers in general before the other, and then its fellow becomes more and more amaurotic in accordance with the extension of disease. Can we deduce the seat of cerebral disease from its effects? I think not. We see disease confined to the cerebellum producing blindness as constantly as when situated in the very part whence the optic nerves take their rise; and blindness is one of the symptoms which, acute and chronic, simple or compound, disease of the spinal cord effects. I trust, in some future paper, to state all that is known concerning the influence of the spinal cord on vision.

The amaurotic symptoms seemed to indicate some mischief going on in the globes themselves, independently of the cerebral affection, whilst the squint seemed to result from the amaurosis rendering the left eye useless, and by its increase likewise interfering with the normal axis of its fellow. The fact of its not occurring until the vision of the left eye was quite lost, leads me to this conclusion in preference to the supposition of its cerebral origin.

15, Featherstone Buildings,
March 2d, 1841.

DROPSY AS THE SEQUELA OF SCARLATINA.

To the Editor of the Medical Gazette.

Sir,

If you consider this letter of sufficient interest, I shall consider its insertion in your valuable journal a great favour.

In reading the highly interesting and instructive report of the Ardwick and Ancoats Dispensary, by Dr. Howard, in your last No., my attention was arrested by his remarks upon dropsy as the sequela of scarlatina; and I would request the favour of inquiring whether it has appeared to him that the occurrence of this sequela has any connection with the treatment adopted during the course of the primary complaint?

The reason I ask this question is, that Dr. Seymour, physician of St. George's Hospital, in his valuable lectures on the Practice of Medicine, in speaking of anasarca following scarlatina, says, "this disease generally follows those cases where purgatives have not been given so freely as is proper, or where the usual diarrhœa that follows eruptive fevers has not occurred; it seldom, or perhaps never, follows a case in which there is great affection of the throat, or which is of a malignant character, as in such cases the purgatives have always received due attention." This would appear, in some measure, to be borne out by the observations of Dr. Howard, who says "it was, according to my observations, decidedly more frequent after mild than severe cases," and that "in twenty of the cases medical aid was not sought until the dropsy had supervened."

If Dr. Howard has the means of ascertaining whether, in the cases of this complaint included in his report, free purgation has been omitted, it would, I fancy, lead to a useful practical deduction; for although it seems probable that exposure to cold is the, or one of the, exciting causes of the disease, yet the neglect of the proper application of purgatives during the course of the primary disease may prove an important predisposing cause.

I may perhaps mention that the authority I have quoted also states that blood is always present in the urine in this form of anasarca. May not this be the source of the albumen?

I am, sir,
Your obedient servant,
ARTHUR BROWNE STEELE.

Northampton, March 1, 1841.

ANALYSES AND NOTICES OF BOOKS.

"L'Auteur se tue à alonger ce que le lecteur se tue à abréger."—D'ALEMBERT.

Organic Chemistry, in its applications to Agriculture and Physiology. By JUSTUS LIEBIG, M.D. &c. Edited from the M.S. of the Author, by LYON PLAYFAIR, Ph. D. 1840.

THIS is a work of remarkable interest. Uncertain as the general principles of organic chemistry must at present be acknowledged to be, we find here applications of its facts made to a number of the most interesting and important phenomena of the universe, and this with a boldness and clearness which have rarely been surpassed. Professor Liebig has studied organic chemistry less in his own laboratory than in nature's processes on her own great field; and his conclusions are therefore obtained less frequently from the products of delicate analysis, than from the natural phenomena presented in wide tracts of land, woods, meadows, and corn fields, and in their respective vegetable products, or from the operations of art on a large scale.

Much of the work is remote from the province of medicine, and we have but insufficient space for that which most nearly concerns us. Of a part of this, however, we cannot resist offering some abstract.

The greater part of the chemical changes that occur in organized bodies under ordinary circumstances are those called chemical *transformations* or *metamorphoses;* the peculiar character of which is, that by the action of a decomposing body, or force, the elements of a compound are disturbed, and made to enter into two or more new compounds, with one or more of which the decomposing body may or may not combine. From the very slight force by which the elements of organic bodies are held together—the consequence at once of the number of elementary atoms that enter into the composition of the compound, and of the abundant presence of nitrogne nad water—the slightest forces are sufficient to excite the commencement of their chemical transformation. And this once commenced, there comes immediately that influence which is the most important in the chemistry of organic substances, and which the author, though he cannot be said to have discovered it, has been the first to exhibit in its true importance—we mean the influence which a body in the act of combination or decomposition exercises upon any other body with which it may be in contact. Such a body "enables," (or, we would rather say, *may induce*, for the influence is not always effectual, though it is probably always exercised), "another body with which it is contact to enter into the same state."

There are examples of this in inorganic chemistry. Platinum does not decompose in nitric acid; it may be boiled with it, even in a state of the finest division, without being oxydized. But an alloy of platinum and silver dissolves with great ease in nitric acid: the oxydation which the silver suffers causes the platinum to undergo the same change; or, in other words, the latter body, from its contact with the oxydizing silver, acquires the property of decomposing nitric acid. Metallic oxydes, in which the whole or a portion of the oxygen is very weakly combined, not only cause the decomposition of peroxyde of hydrogen, as some of the pure metals do, but are themselves also decomposed and reduced; the act of decomposition of the one oxyde, mechanically (?) produced, having a decomposing influence upon them. "It is evident," therefore, "that the active state of the atoms of one body has an influence upon the atoms of a body in contact with it; and if these atoms are capable of the same change as the former, they likewise undergo that change; and combinations and decomposition are the consequence." Many organic compounds retain their state only by the *vis inertiæ* of their particles; if this only be destroyed, if motion be in any way communicated to them, they obey other affinities, or their own natural attractions, and enter into combinations, which, under the circumstances, are more stable.

This principle is strikingly exemplified in the processes of fermentation; the ferment is a body undergoing decomposition, and as soon as it is added to the organic solution it exerts a decomposing influence on its particles, which enter into new combinations, or continue passing through a series of changes till the whole of the ferment, the original excitor of the action, is decomposed, and comes to a condition of rest, when again all action will cease. The whole of this process is admirably illustrated; but its details concern the brewer and the wine and vinegar merchant more than the doctor; and we, therefore, prefer to draw our illustration of this decomposing influence of decomposing bodies from those processes which are directly of professional interest, although it must be confessed that such explanations as in the more simple processes bear the manifest stamp of truth, are here comparatively (we are far from thinking them *absolutely*) hypothetical.

When blood, brain, gall, pus, and other substances in a state of putrefaction, are laid upon fresh wounds, vomiting, debility, and at length death, are (sometimes) occasioned. Bodies after death frequently pass into a state of decomposition, which is capable of imparting itself to the living body: a cut with a knife used in dissecting them producing dangerous consequences. Bad sausages have produced death in hundreds of cases; and these have especially happened in Wortemberg, where sausages are prepared from various materials. If well prepared they may be preserved for months, and furnish a nourishing savoury food; but when the spices are deficient, and particularly when they are not smoked till they have been long made up, or not smoked sufficiently, the sausages undergo a peculiar kind of putrefaction which begins at the centre; and in these parts they become paler, soft, and greasy, and are found to contain lactic acid and lactate of ammonia, constant products of putrefaction. No poisonous material can be detected in such sausages, and alcohol and boiling water completely destroy their injurious properties: their influence is the consequence of their being taken into the blood while they are still in a state of decomposition, and of their imparting their peculiar action to the constituents of that fluid.

In the very disease which such sausages produce the author sees the effects of the decomposing influence. There is a gradual wasting of the muscular fibre, and of all the constituents of the body similarly composed; the patient becomes much emaciated, and dries to a complete mummy, and finally dies. The carcass is stiff, as if frozen, and is not subject to putrefaction. All substances in the body that are capable of putrefaction are gradually decomposed, and after death nothing remains except fat (?) tendons, bones, and a few other substances, which are incapable of putrefying in the conditions afforded by the body.

Of course the author adduces other examples of the same kind of influence from syphilis, small-pox, and other contagious and malarious diseases; and he here passes over the ground which has been trodden by many of his predecessors, who have held in all these diseases a theory of fermentation. He points out, also, the analogies between the two processes with all that greater precision which the improved chemistry of modern times, wielded by one of the greatest masters of the science, could not fail to give; but there is nothing in his illustrations that is novel as well as important. It must be confessed, indeed, that in these subjects, pathology is not yet mature for the reception of all the aid that chemistry will one day give it; and if we have a fault to find with the work before us, it is for the boldness with which it asserts things as beyond doubt, of which every practised physician could tell him that that part of their foundation which is set on physiology is utterly fallacious.

In saying this we do not wish to be taken as meaning that chemistry has nothing to do with contagious and other diseases; on the contrary, we believe it highly probable that the act of fermentation, and the influence and apparent reproduction of a contagious virus, will be hereafter proved to be closely and particularly analogous, if not identical. We object only to the method in which these subjects are written on, by those who deal with them as if nothing on either side of the case was doubtful; and who *assert* with more boldness than they are warranted to feel in *thinking*.

Some of the few remarks that the author makes on the action of poisons are important. Speaking of the small quantities of some that are destructive to life, he points out an explanation drawn from the very high equivalent numbers of most animal substances. That of fibrine is 6361; and it may, therefore, be assumed that a quantity of fibrine, corresponding to this number, combines with one equivalent of arsenious acid or of corrosive sublimate. When 6361 parts of anhydrous fibrin are combined with 30,000 parts of water, it is in the state in which it is contained in muscular fibre, or in blood in the human body; 100 grains in this state would form a neutral compound, of equal equivalents with three grains four-tenths of arsenious acid, and five grains of corrosive sublimate. In like manner 100 grains of albumen, containing all the water natural to it in the body, would combine with a grain and a quarter of arsenious acid; in other words, it would need but five grains of corrosive sublimate, or 3·5 of arsenious acid to poison every 100 grains of fibrine in the body.

The author's notions on the action of medicine are sometimes rather strange. The action of concentrated solutions of salts in purging, depends, he holds, on their abstracting water (after the fashion of the mutual interchange of endosmose) from the vessels of the digestive canal; and thus diluting the solid substances contained in the intestines. The composition of the salts has nothing to do with their purgative action! We suspect if a healthy man were to take sulphate of magnesia one day, in the same quantity as he ordinarily takes chloride of sodium at his meals, he would be able to contradict the professor.

But we must here leave the work. The desire to consider those parts of it which most concern our readers has compelled us to abstract the worst portions of it. The specimens we have given do not do it justice; on all subjects relating to agriculture, brewing, the management of vines and wines, its contents are far better; and from all who are interested in chemistry, or in those arts, they deserve a most attentive perusal.

Essays and Heads of Lectures on Anatomy, Physiology, Pathology, and Surgery. By the late Alexander Monro Secundus, M.D. &c., upwards of fifty years Professor of Anatomy and Surgery in the University of Edinburgh; with a Memoir of his Life, &c. By his Son and Successor. Illustrated by Engravings. Edinburgh, London, and Dublin, 1840. 8vo. pp. clix. and 132.

Dr. Monro, the second physician of that name, was born in the year 1733, and died in 1817, in the 85th year of his age.

"The late Dr. Monro of Edinburgh," says Dr. James Gregory, in a letter to our author, "long and most deservedly enjoyed the highest eminence which any man of the medical profession ever attained in Scotland. * * * * Hardly any life, even of a literary man, can be conceived to afford fewer interesting materials for a biographer than Dr. Monro's. It was distinguished by no striking event—it was chequered by no vicissitudes of good and evil; it was a life, from early youth to extreme old age, of almost uniform and uninterrupted prosperity. Nay, he seems scarce to have felt any of those discouragements in his splendid career, which most men of literary professions, but especially physicians, experience in their laborious progress to the highest honours and rewards to which they can aspire; and certainly his progress was never retarded by any such adverse circumstances. His success, on all occasions, like the victories of Timoleon, seemed always to be accomplished with ease; yet it cannot, on this account, be attributed altogether to good fortune or mere chance. Some favourable, almost accidental, circumstances contributed, no doubt, to his great success in life; but much more of it must be attributed to his own merits, to his constant unexampled activity in every pursuit in which he engaged, and to his good sense in perceiving and improving those advantages which might be considered as mere favours of fortune."

The memoir embodies short notices of the different works published by Dr. Monro secundus, with extracts from his lectures, and a few additions by our author. The essays are five in number. The first is on the lymphatic system; the second, on the character, causes, consequences, and mode of treatment, of inflammation; the third is on the structure of the windpipe and lungs, and some of the organic derangements of the lungs and pleuræ; the fourth treats of the structure and some of the organic diseases of the circulating system; the fifth is entitled, "of the cause of the dangerous inflammation which generally follows the wound of a shut sac, and of the manner of preventing it."

This book contains matter to interest both the physiologist and the practitioner; and ought to find a place in every complete medical library.

A System of Midwifery. By EDWARD RIGBY, M.D. Physician to the General Lying-in Hospital, &c. London, 1841. Small 8vo. pp. 314.

THE work before us is the sixth volume of the Library of Medicine, edited by Dr. Tweedie, of which we took occasion to speak favourably some months ago.

Dr. Rigby has divided his work into five parts; which are, severally, on the anatomy and physiology of utero-gestation; on natural pregnancy, and its deviations; on eutocia, or natural parturition; on midwifery operations; and on dystocia, or abnormal parturition.

Besides English and French writers, our author quotes freely from German ones, such as Naegele, Boer, and Wigand. In speaking of the lock of the forceps, he says, "An ingenious modification was invented by the late Professor Von Siebold, of Berlin; but the most perfect lock is that of Professor Brüninghausen, of Würtzburg, first introduced by ourselves into this country, and known among the instrument-makers under the name of Professor Naegele's forceps. The shank of one blade has a semicircular indentation, which, at the moment of locking, fits into a fixed pivot in the other; this, therefore, combines the advantages of the French and English locks. We can safely affirm, from extensive experience for many years, that there is ever less difficulty in locking it than with the English lock. The blades are capable of instant separation; and yet, when locked, the firmness of their union is equal to that of a pivot joint."—P. 137.

It seems that Madame La Chapelle always shows the forceps to the patient before using it, and we think she is in the right. She also partly explains its use: "il n'en est aucune que cette démonstration ne tranquillise, et j'en rencontre souvent qui à leur deuxième accouchement sollicitent l'application du forceps qu'elles ont vu mettre en usage pour les débarrasser du premier."

Dr. Rigby's work does him credit; and will maintain the reputation of the useful collection of which it forms a part.

A Practical Treatise on the Cure of Strabismus or Squint, by Operation, and by Milder Treatment; with some new Views of the Anatomy and Physiology of the Muscles of the Human Eye. By P. BENNETT LUCAS. Illustrated by Plates. London, 1840. 8vo. pp. 91.

THIS is a sensible and useful treatise on a subject which has of late much occupied the profession. After a full account of the orbits, the muscles of the eye, and their insertions, the conjunctiva, and the subconjunctival and sub-muscular fasciæ, our author proceeds to consider the causes of squinting. This distortion may arise from excessive development of the rectus internus, dyspepsia, disease of the brain, the exanthemata, from imitation or habit, corneal opacity, &c. In many of these cases it is clear that the operation would be useless, or injurious.

"Two cases presented themselves to me some months ago, to be operated upon for convergent strabismus. On examining the condition of the eyes, one cornea in each was found to be densely opaque; in one case for half its circumference, in the other for a smaller extent. Both squints were consecutive upon the opacities, and evidently took place for the purpose of allowing the rays of light to pass through the transparent portion of the cornea," (p. 55—6). Our author very properly refused to operate in this case; but the operation was performed, he says, by some one else, and the eye was thus rendered straight, but useless,

There are other forms of strabismus which are curable by medicinal treatment, or by mere lapse of time; and which, of course, must not be selected for operation.

The sections on the mode of performing the operation, on the reparative process after it, on the causes of failure of the operation for convergent strabismus, and on the effects of the operation on vision, are all interesting; but instead of making extracts from them, we deem it better to refer our readers to Mr. B. Lucas's treatise.

MEDICAL GAZETTE.

Friday, March 5, 1841.

"Licet omnibus, licet etiam mihi, dignitatem *Artis Medicæ* tueri; potestas modo veniendi in publicum sit, dicendi periculum non recuso."
CICERO.

MEDICAL DEGREES.

MARISCHAL COLLEGE, ABERDEEN.

OUR readers are aware that we never have attached any very great importance to medical degrees, as was pretty clearly proved by our articles on the subject, when the College of Physicians decided—and in our opinion very wisely decided—on not requiring them from those who were candidates for their license. On the subject of all such honours we are much of the opinion of Falstaff:—

> "Can honour set to a leg? No. Or an arm? No. Or take away the grief of a wound? No. Honour hath no skill in surgery, then? No. What is honour? A word. What is in that word, honour? What is that honour? Air...... Honour is a mere scutcheon, and so ends my catechism."

When, however, the new regulations of Marischal College, Aberdeen, were sent to us for insertion some three weeks ago, along with a local paper containing an elaborate encomium upon them, we thought the whole subject worthy of attention, and we noticed it in our number of Feb. 12th. Our remarks applied, first, to the plan of education which Marischal College has laid down, and the principles upon which it intends to grant medical degrees; and secondly, to its right to confer such degrees. Our last number contains a letter from Dr. Clark, who it appears is Professor of Chemistry in Marischal College, which he has been pleased, for reasons best known to himself, to designate as *the* "University of Aberdeen," and the "Marischal University."

In this letter, the learned professor expresses much anger at the manner in which we have treated the second branch of the subject. He seems to imagine that the proceedings and privileges of his College are altogether beyond the pale of criticism or discussion. He says we have charged the College with "fraud;" that we have represented him and his colleagues as a "gang of impostors;" and he talks with "scorn" of our "disgraceful attack."

Now here is a great deal of virtuous indignation and excellent resentment absolutely thrown away. We have been in the habit of discussing—and our best title to public confidence is, that we have discussed freely and independently—as well the constitutional powers and duties of the various public bodies connected with the profession, as the manner in which those powers and duties have been exercised and discharged. In particular, we have never shrunk from the examination of matters to which our attention has been specially invited by the parties concerned, and for the circulation of which we have, at their own request, lent our columns. That Marischal College had exceeded its legal authority, seemed a necessary conclusion from the premises which we stated. But in touching upon the history of its medical degrees, we not only did not apply to the College, and the gentlemen who are associated with Professor Clark in "fulfilling the high functions entrusted by the country to their charge," the offensive expressions which the Professor has thought it becoming to use with regard to them, but we did not so much as insinuate anything at all affecting their honour or integrity. The question at issue is one in which many professional men are interested, and we shall therefore enter more fully upon it than we should otherwise have done. We feel "scorn," we trust, for no man, and we will endeavour to explain to Professor Clark why his letter has failed to produce in us that conviction which we always yield to sound reasoning, however discourteously expressed.

In the first place, we referred the commencement of the Marischal College degrees in theology, law, and medicine, to the year 1728, or thereabouts. To which Professor Clark replies, that Newton's Philosophy was then and there "taught first from the lips of Colin Maclaurin"—a fact which, however interesting, if authenticated (although, by the way, the Edinburgh Encyclopædia represents him as having been Professor in the University of Edinburgh as early as 1725), has, so far as we have yet been able to discern, no very obvious or important bearing on the question before us: seeing that the interpretation of charters and the definition of legal rights, have never formed the peculiar province of the Newtonian philosophy. Now we would respectfully suggest that the quotation of a few instances of graduation in theology, law, or medicine, prior to the date assigned by us, would have met our statement much more appositely.

Again, it is inaccurate to represent us as having said "that in Marischal College no provision was made for theological instruction." We said that it was created "without any faculty of theology, of law, or of medicine" — a very different statement, and quite consistent with the fact that the principal is required by the charter to lecture on sacred literature for one hour once a week, as also to lecture on the physiology of Aristotle, to which this all-accomplished official is to add a short explication of anatomy, and, moreover, to propound the principles of geography, chronology, and astronomy, besides the Hebrew grammar, in which, as in Syriac, he is required to be skilled! We wonder whether the principal still possesses these multifarious attainments? Professor Clark admits that, "in a national chartered institution, it is not at all unusual that, as occasions arise for its enlargement, the original charters should be found narrow enough to give occasion to questions as to their interpretation under new circumstances." So say we;—and the more's the pity.

In his statement of the case in the House of Lords, our learned opponent has fallen into several important mistakes. The charter of King's College, Aberdeen, requires the professor of civil law to be a Doctor in that faculty, if such persons can *conveniently* (*commodè*) be had; otherwise, a licentiate *cum rigore examinis*, who is to take the degree of Doctor within a year. The office being vacant, Catanach, an Aberdeen advocate, holding a diploma of LL.D. from Marischal College, had a majority of votes; Gordon, of the Scotch bar (not claiming to be a graduate in Law), had the remainder. Gordon contended that he, having passed an examination for the bar, came within the description of a licentiate *cum rigore examinis*, and that the votes for his opponent were thrown away:—the latter being no licentiate *cum rigore examinis*, as never having been examined, and no doctor, as possessing only a Marischal College degree;—and, consequently, not duly qualified. The Scotch courts decided in favour of Gordon; but the House of Lords found that Catanach was qualified, and had been duly elected.

The decision did not touch the question as to the validity of his degree, as that point did not affect the real merits of the case, the preference given to doctors by the charter being quite discretionary—but it proceeded on one of the two following grounds: either that the whole *status* of licentiate in civil law having fallen into desuetude, any one was eligible; or that Catanach, being a member of the learned body of the advocates of Aberdeen, came within the description of licentiate, and because a year after the appointment is allowed for obtaining the degree. Certain it is that Aberdeen advocates, having no degree of LL.D. from any college whatever, have since been elected to the office without question.

It is not quite accurate to say that the professor of law, or the Principal, of King's College, *must* be doctors in their several faculties. The clause in the charter, which prescribes graduation within a year, is merely directory; it ought, no doubt, to be complied with, but the election is not made void by non-compliance. But suppose the members of King's College to have acquiesced in what Marischal College has done; how does that strengthen Professor Clark's position? If, indeed, King's College has suffered Marischal College to do something by which King's College alone was injured, and which it alone had a right to concede or to withhold, the acquiescence of that body might be an important element of discussion. So if Marischal College had wrongfully detained, for the last hundred years, any property—say books—belonging to King's College, then the latter body would lose its legal remedy by acquiescence, however its moral claim to restitution might be regarded. But it is as against the crown and the public, not as against any other college, that Marischal College claims this right. The Reports of the late Royal Commissioners do, indeed, adopt the phraseology which has of recent years become current on this subject. But a Report cannot confer on any institution a character which did not belong to it before. Against the crown no right can be established by the wording of documents, the reports of commissions, or any thing but direct grant, evidenced by charter or by immemorial custom. As, however, Professor Clark refers to the proceedings of the Royal Commissioners on this subject, let us, for his satisfaction, refer him to the evidence given before them in October 1837, by Dr. Fleming, the distinguished naturalist, a professor in King's College. In that evidence, the very opinion which we lately intimated was most fully and emphatically expressed, and the historical facts, upon which it is grounded, were set forth. The statement was made in the presence of the Principal, the Dean, or late Dean, of Faculty, and the Rector, or late Rector, of Marischal College, all being Royal Commissioners. It has been laid before the Queen, and before Parliament; it has been printed and published; and yet up to this time it remains unanswered, either by any counter-evidence, or, so far as we are informed, by any attempt at argumentative refutation. How is this? If the statement is inaccurate, and is so offensive to Professor Clark, who shows a warm zeal in the cause of the learned body to which he belongs,—why has he not taken up the gauntlet thrown down by Dr. Fleming? why, after slumbering upon the wrongs of his College for three years and a half, has he come forth against *us* with so much spirit and alacrity? Can it be that he, too, has found it "expedient to seek an audience among strangers"? May Dr. Fleming take from Marischal College the very name of university, and may we not look over its charter?

We here take leave of Professor Clark; but should it appear that any important charter exists with which we have not been made acquainted, we shall be glad to publish it, and to give it our best consideration.

ROYAL MEDICAL & CHIRURGICAL SOCIETY.

Tuesday, February 23, 1840.

EDW. STANLEY, ESQ. VICE-PRESIDENT, IN THE CHAIR.

Cases of Cancerous or Malignant Disease of the Spinal Column: with Remarks. By CÆSAR HAWKINS, Surgeon to St. George's Hospital.

THE author is induced to lay before the society the four cases, the particulars of which are detailed in his paper, from a belief that the fact of malignant disease occasionally affecting the bones of the spine has not been sufficiently dwelt upon by previous writers. There is no other peculiarity in these cases than such as arises from the locality in which the disease occurs, as the alteration manifested by the bony structure is closely analogous to that described by two fellows of the society—Mr. Salter, of Poole, and Mr. Samuel Cooper, in the 15th and 17th volumes of the Society's Transactions, respectively. But though the morbid structure is the same in the several instances, and though the disease first manifested itself in each in the form of cancer of the breast, the train of pathological symptoms in the cases related by the author were extremely peculiar and striking—illustrative of the physiology of the spinal marrow. Thus, in one of these instances, although voluntary power was suspended in every muscle of the limbs, loins, and abdomen, as well as in the sphincters of the bladder and rectum, many of those muscles were, nevertheless, in a constant state of tonic spasm; while there were also, occasionally, convulsive or chronic spasms in the same or other muscles of the limbs or abdomen. The abdominal muscles were so permanently contracted as to curve the body forwards, and present rigid masses to the fingers, the pressure of which increased their hardness. The legs could be extended with very little resistance, and would be flaccid for a few seconds, after which they would suddenly be drawn up again, with a feeling of excruciating pain. Sensibility to external impressions was entirely lost in every point below the back, so that the patient could not feel smart pinching or pricking; while in every part violent pain was caused by spasm, either spontaneous or excited, and sometimes occurred even when no contraction was present. The temperature was permanently higher, below than above the diseased part, the difference amounting to about four degrees. The urine was permanently alkaline, but free from mucus or albumen. Nutrition was impaired in the usual manner below the disease, so that there was a disposition to the formation of sloughs on any parts exposed to pressure.

In all these cases, as has been before remarked, the malignant disease of the spine was consecutive upon cancer of the breast: and there seems strong reason to believe that, although medullary and fungous tumors not unfrequently originate in bone, ordinary cancer, or scirrhus, is, at least, very rare without preceding cancer of some other tissue.

The author concludes with some highly important general observations upon the appearances elicited by dissection in the cases detailed; and many valuable preparations of the diseased parts were shewn to the meeting.

Dr. Addison remarked, that some of the cases related in the author's paper were confirmatory of the opinion which he had advanced in a discussion on a previous evening, respecting the diagnosis of affections in, and in the neighbourhood of, the spinal cord; namely, that whenever there was actual paralysis, whether loss of sensation, or impaired power of motion below the seat of injury, then it might be anticipated there was disease of the spinal cord itself; but that where the symptoms were chiefly those of spasm or pain in the same parts, then it was probable the disease chiefly or exclusively involved the membranes surrounding the cord, and excited irritation in them. This belief was especially confirmed by that case in which the disease of the vertebral column extending, had produced ulceration of the dura mater of the cord, and in which the patient had suffered from very painful spasms of the lower extremities.

Mr. Hawkins said the case Dr. Addison had alluded to was not to be described as ulceration of the dura mater; it was rather a degeneration and softening of it, by communication of the disease from the adjacent parts, which was followed by perforation of it.

Dr. Addison replied, that whatever were the nature of the disease of the dura mater, it was plain from the appearances (especially the increased vascularity) that were described as accompanying it, that it was connected with some kind of irritation of the membranes, and that the case was therefore confirmatory of the opinion he had already expressed.

Mr. Arnott briefly detailed the histories of three cases of malignant disease of the vertebral columns, which he had witnessed at the Middlesex Hospital, or in private practice.

Dr. Burns also related a case of tubercular disease of the same kind and seat, and said that his experience did not accord with that of Dr. Addison.

After a few words from Mr. Stanley and Mr. Hawkins the Society adjourned.

Previous to the reading of the paper the President announced that there were nine vacancies in the list of Honorary Members, and that to fill these, the Council proposed to the Society—Sir J. F. W. Herschel, the Rev. W. Whewell, Robert Brown, Esq., W. T. Brande, Esq., M. Andral, M. Louis, M. Magendie, Professor Ehrenberg, and Professor Müller. It was also announced that the anniversary meeting of the Society would be held on Monday, the 1st of March, at 3 o'clock.

OFFICERS AND OTHER MEMBERS OF COUNCIL FOR THE YEAR 1841-2.

President—Robert Williams, M.D.

Vice-Presidents—J. Clendinning, M.D.; Charles Locock, M.D. James M. Arnott, Esq.; Frederick C. Skey, Esq. F.R.S.

Treasurers—Samuel Merriman, M.D.; Cæsar H. Hawkins, Esq.

Secretaries—Thos. Mayo, M.D. F.R.S.; John G. Perry, Esq.

Librarians—Robert Willis, M.D.; Benjamin Phillips, Esq. F.R.S.

Other Members of Council — George Darling, M.D.; Marshall Hall, M.D. F.R.S.; James Johnson, M.D.; G. Hamilton Roe, M.D.; Thomas Watson, M.D.; Sir Benjamin C. Brodie, Bart. F.R.S.; Benjamin Brookes, Esq.; Robert Liston, Esq.; R. A. Stafford, Esq.; J. C. Taunton, Esq.

EXTRACT FROM SIR B. BRODIE'S SPEECH AT THE ANNIVERSARY MEETING.

Eulogium on Sir Astley Cooper.

Sir Astley Cooper was the fourth son of the Rev. Dr. Cooper, who was rector of Yarmouth, in Norfolk, and otherwise a gentleman of independent fortune. Dr. Cooper conducted the education of his sons in his own house, and Mr. Vince, who was afterwards well known as Professor of Mathematics in the University of Cambridge, was one of those who assisted him in this undertaking in the capacity of private tutor. It appears that his son Astley, at this period, displayed none of that disposition to industry which was afterwards so remarkable a feature in his character; being more distinguished as a lad of spirit and enterprise than he was for his love of learning. When he was about sixteen years of age an accidental circumstance occurred, which determined the lot of his future life. A boy was thrown from a waggon, and the accident happened in such a way as to cause a laceration of the femoral artery. Some other boys who were present were stricken with horror at the sight of a torrent of blood flowing from the wounded vessel, and ran away. Young Astley alone remained, and had sufficient presence of mind to tie a handkerchief round the thigh, so as to stop the hæmorrhage until the arrival of a more experienced artist. Enjoying the credit which he obtained by this exploit, he declared that he would be a surgeon; and his father, taking him at his word, sent him shortly afterwards to London, placing him under the late Mr. Cline as a private pupil. At that time of day a most absurd custom prevailed of sending boys to begin the study of surgery at the early age of fifteen or sixteen years; as if a good general education was of no value, and as if there was something in the surgical profession which none but a youth could learn. In young Astley's case the usual consequences ensued. His early studies were interrupted, and the first two or three years of his being in London were employed to no good purpose. It appears, however, that Mr. Cline discovered something in his idle pupil which led him to expect that he would turn out well ultimately; for, in the course of time, he gave him to understand that if he could qualify himself for the task, he would give him the opportunity of beginning to teach anatomy as a demonstrator in the dissecting room of St. Thomas's Hospital. From this time the young man became an altered person, and his careless and desultory habits were exchanged for a degree of zeal and industry which could not be surpassed, and which he retained to the latest period of his existence.

In the year 1796, being then twenty-eight years of age, with the sanction of his patron, Mr. Cline, he began to deliver lectures on surgery. He had previously attended those of Mr. John Hunter, and he conceived that he could follow in the steps of that great genius, whose object it was to teach, not so much the details of practice, as what he conceived to be the principles of pathology and surgery. But he mistook his talent, and his class soon began to desert the theatre in which he lectured. This, however, only led to the display of another talent, for which he was remarkable during his whole life. No one could discover sooner than himself what he was fit for, and what he was not. He never allowed his vanity to mislead him on this point; and he never persisted in doing that for which he found that he was not well qualified by nature. On this occasion he was not wanting, and soon corrected the error which he had committed. He altered his system of instruction. He brought his notes of cases from the hospital, and communicated to his pupils the facts which he had collected and arranged. His discourses, full of important practical knowledge, became valuable and attractive: his class increased, and he soon became one of the most popular and influential lecturers of his day.

In the year 1800, his uncle having resigned the office of Surgeon to Guy's Hospital, he was elected to succeed him. He had now every opportunity of advancement which could be derived from circumstances, independent of his own character and conduct. His career as a hospital surgeon is well known to all of those whom I now address. You also know the important additions which he made to surgical literature, and the success which his very extended reputation obtained for him in private practice: and I feel that it would be idle for me to occupy your time with the details of facts with which you are already well acquainted, and which, in one way or another, have been brought so repeatedly before the public.

If it be generally interesting to study the character of those, who, by the exercise of their own talents, have raised themselves to a conspicuous station in society, it is so more especially on an occasion like the present, where the individual has been one with whom we have ourselves associated; whose early hopes and aspirations were similar to our own; who has been engaged in the same pursuits, and partaken of the same anxieties and gratifications with ourselves.

In reviewing the history of Sir Astley Cooper, the first thing that attracts our notice is the perfect devotion with which he followed the science of his profession from the very beginning to the very end of his career. No other pursuit stood in competition with it, and we cannot doubt that his attachment to it was genuine—that he loved it for its own sake, without reference to it as an instrument for amassing a fortune, or acquiring distinction or importance in the world. Some years ago, when his health was suffering from severe mental and bodily exertions continued during a long series of years, he retired to lead the life of a country gentleman on his own estate, in Hertfordshire; but the experiment failed, and in less than a year he was compelled, by the want of interest in other objects, to return to his old employment. No alteration took place in this respect as he advanced in years, and the additions which he made to his anatomical museum, and his work on the structure of the female breast, bear honourable testimony to the zeal and activity of the latest period of his life. Zeal may exist without industry, as there may be industry where there is little zeal; but in Sir Astley Cooper these two qualities existed in combination, each tending to exalt the other. Even up to the time of his last illness he was in the habit of rising at half-past six o'clock in the morning, and was generally engaged in some anatomical or pathological dissections for two or three hours before he began what others would have regarded as the first business of the day. He was never without occupation, and having no desultory habits, he persevered steadily in any investigation that he had begun until he had completed it, as far as it was in his power to do so. A strong physical frame afforded him peculiar facilities of labour; yet, notwithstanding this, his exertions were at one period beyond his powers; and he informed me, not long since, that during a great part of the time when he was engaged in extensive practice, he was subject to attacks of vertigo. One of these, more severe than usual, occurred in the year 1824, attended with a slow and intermitting pulse. On one occasion his limbs gave way under him, and he fell to the ground. In the year 1827 he had a fever of an intermitting kind, attended with great general debility, and loss of power over the muscles of one arm, so that he could with difficulty raise any thing to his mouth. This alarmed him greatly; and seems to have been the immediate cause of his temporary retirement from his profession. He afterwards had a fit of the gout, which, combined with the repose of a country life, relieved his other symptoms.

It must be acknowledged that we find in Sir Astley Cooper but little of that inventive and discursive faculty which analyses, combines, and abstracts; which perceives and realises remote relations and analogies; and to which we must attribute the exploits of genius, whether it be in poetry or science. It must also be acknowledged that, for the most part, he thought too rapidly for strict philosophical induction, and that he was apt to draw a general conclusion, even from a single instance, which nothing but an abundant evidence could justify. In truth, the construction of his mind was such that it was less fitted to deal with principles than it was to deal with facts; but in this last respect I have scarcely known his equal. He was a minute and accurate observer, and his perception of facts was so vivid, and the attention which he bestowed on them was so great, that almost every thing of any importance, which he had ever witnessed, remained indelibly impressed in his memory. Many who are now present can testify to the truth of this observation, and will well remember with what facility, when a remarkable case was presented to him, he could draw from the fund of his vast experience, describing some cases exactly like it which he had seen many years before, and others resembling it in some respects, and differing from it in others. He was scrupulously exact in all his statements, and no one could be more free than he was from that weakness to which even some honest persons are liable, who make themselves believe that facts are different from what they are, when it so happens that they do not precisely suit their preconceived opinions.

At one period of his life Sir Astley Cooper was much engaged in operative surgery, and an opinion has prevailed with many out of the medical profession, that skill in performing operations was the greatest talent which he possessed. Some of the absurd and vulgar, and, for the most part, unfounded anecdotes which have been published since his death, are calculated to give countenance to this opinion. But I need not tell the Fellows of this Society how great an injustice this is to the memory of our late associate. It is very probable that, as a young man, Sir Astley Cooper might have been highly gratified by the merit which he obtained as an operating surgeon, at a time when he had not yet had the opportunity of acquiring a higher and more substantial reputation. Many, however, have been his equals, and even his superiors, in this respect; and the estimation in which he was held among those who had a right to judge of his attainments, is to be attributed to his intimate knowledge of the history and progress of disease, and to his talent in selecting and applying the appropriate remedies; and to nothing else. The time may even arrive when it will be forgotten whether he was or was not expert in the performance of operations; but his published works will remain as long as surgery is cultivated, and especially the treatises on Hernia and Dislocations—replete with important facts, and containing the clearest rules of diagnosis — will transmit his name to posterity with those of Sydenham and Hunter, as a benefactor to the human race.

Sir Astley Cooper enjoyed an unusual degree of popularity for a long series of years, especially among the members of his own profession, and more than his character as a surgeon, however high it may have stood, can easily explain. He owed much of this to his moral qualities. He was considerate towards other practitioners; always ready to communicate whatever information he possessed in a simple and familiar manner; and he never attempted to obtain credit for himself at the expense of a fellow-labourer. In his intercourse with others he was essentially kind-hearted, and he possessed that degree of cheerfulness which made him acceptable to every one whom he met, and without which it is so difficult, and I may say impossible, to obtain an influence over the minds of other men. He possessed another great advantage in having no small degree of practical knowledge of human nature. By this I mean not that kind of knowledge to which this appellation is so frequently misapplied,—founded on a quick perception of the weak points of the minds of other men, by means of which individuals of small capacity are enabled to gain an ascendancy over those whose intellects are superior to their own,—but a clear and ready insight into the whole of the human character, a knowledge of the qualities of the mind generally, and of the motives by which the actions of mankind are regulated.

There is one other point in Sir Astley Cooper's character which it occurs to me to notice before I quit the subject, and I do so merely because it gives me the opportunity of contradicting some most false and injurious statements which have been lately put forth respecting him. Although he derived from his practice a larger income than was ever obtained by any other person, either in the medical profession or in any other, he never exhibited in his profession any thing approaching to the vice of avarice. He was in the greatest degree liberal, and apparently careless as to the remunerations which he received. I say this with the utmost confidence, having never known nor heard of a single instance to the contrary during my long acquaintance with him.

CLINICAL LECTURE,

Delivered at University College Hospital,
February 23, 1841,

By Samuel Cooper,
Senior Surgeon to the Hospital, &c.

Gentlemen,—Having within the last few days lectured in the College upon Injuries of the Head, I consider it advantageous to you, that any cases in the Hospital, illustrative of this difficult, but most interesting subject, should now be noticed, and commented upon. The doctrines taught over the way are thus put, as it were, to the test of experience; and the instruction given in the College, is here in the Hospital illustrated, corrected, or extended. In the hope, then, of rendering your views of certain points relative to injuries of the skull and brain, more accurate, I invite your attention to the following cases and observations.

Case I.—*Fracture of the base of the skull, and of the clavicle and ribs, followed by extravasation and death.*

Clay Weymer, æt. 45, admitted under Mr. Quain, Dec. 4th, about 5 in the afternoon, for an accidental fall from a van on his right shoulder, and the right side of his head. He was stunned, but soon recovered his senses. Directly after his entrance to the hospital he was capable of walking across the room with a little assistance. When seated he inclined his head towards the right shoulder, and supported his arm on his knee, but was quite incapable of raising it to his head—circumstances usual in fractures of the clavicle. A small quantity of blood trickled from the external meatus auditorius. He complained of pain on the right side of the head extending to the forehead, and of pain about the right shoulder. He felt a slight giddiness, and some nausea, but his understanding was unimpaired; his sensation free; his surface moderately warm, though he complained of chilliness; his pulse quick and regular, but not full; pupils slightly contracted, but the iris very moveable under the influence of the light.

No fracture of the skull could be detected, nor was there any swelling or ecchymosis of the scalp; but a fracture of the clavicle, about an inch from the acromial end, was found to have happened; the inner fragment being thrust upwards and backwards beneath the trapezius.

The fracture of the clavicle having been adjusted in the usual manner, the patient was put to bed: bottles of warm water were applied to his feet, and some mild stimulant was to be given him, if symptoms of collapse came on.

Soon after he had been placed in bed, he vomited two or three times, and then seemed more comfortable; but about 8 o'clock, three hours afterwards, symptoms of compression were observed. His breathing became laborious; sensibility and voluntary motion were lost; pupils dilated; and pulse scarcely perceptible. Shortly afterwards he expired.

Examination seventeen hours after death.—A considerable quantity of blood had continued to flow from the right ear. The body presented no mark of violence, except a slight ecchymosis over the right shoulder, and the disfigurement of it from the fracture of the clavicle. A fissure, the sides of which were in close apposition, and perfectly immoveable, was found extending from an inch above the lower edge of the parietal bone, through the squamous portion of the temporal to the margin of the meatus auditorius.

On removing the calvarium, the skull was noticed to be everywhere thin, with scarcely any appearance of diploe; and over the right hemisphere the dura mater was extensively detached from the bones, and the interspace filled up by a large coagulum of bright-coloured blood, amounting to between six and seven ounces. This had come from one of the large posterior branches of the middle meningeal artery. The vessels of the pia mater were very turgid with fluid blood.

In the middle lobe of the brain, on the left side, and towards its inferior surface, over the petrous portion of the temporal bone, were found two small ecchymoses or spots of extravasated blood.

The fracture being now further examined, was observed to extend through the roof of the tympanum and petrous portion of the temporal bone, to the carotid canal, and within the latter bone, and the mastoid cells, blood was also effused. The dura mater was not torn.

On the left side three ounces of blood were lodged between the dura mater and the petrous portion of the temporal bone, in which there was likewise extravasation. The fracture of the clavicle was comminuted, and the second and third ribs of the right side broken.

Observations.—A good example of the subsidence of the first effects of concussion; the return of the mental faculties afterwards for a short time, which amendment was soon permanently interrupted, and the patient destroyed by the continuance of the hæmorrhage from the torn branch of the middle meningeal artery on the right side, and also from other sources at the points specified, so as at length to cause a vast extravasation attended with a fatal degree of pressure. The situation of a good deal of the blood at the base of the skull would evidently have rendered trephining useless. The fracture at the base of the skull, and the spots of blood effused in the middle lobe of the left side, also imply that the violence had been very considerable. It has sometimes, indeed, been doubted whether a recovery ever follows a fracture of the basis of the skull. My friend Mr. Morton, however, has pointed out to me the particulars of such an occurrence, as recorded by Mr. Davies, of Hertford. A man was stunned by a fall on his head, but soon regained his senses, and no serious symptom having followed the return of sensibility, he was discharged on the eighth day after the accident.

During the perfect insensibility, which lasted about an hour, there was copious bleeding from the nose and ears, and the mouth was drawn towards the right side. Then deafness and hissing sensations were experienced in the left ear. The pupils were natural.

A few days after the man had left the infirmary, the mouth was greatly distorted, being pulled to the right side. There was no power of action in the muscles of the left side of the face; but the power of feeling remained equally on both sides of it. A noise in the head, and a discharge from the left ear, lasted for four months. The deafness, which had been at first in the left ear, subsided, and shifted to the right.

At the end of five months the man committed suicide. In the *post-mortem* examination, the brain and its membranes were found healthy. In the left temporal bone there were the remains of a fracture running obliquely backwards and outwards between the squamous and petrous portions, splitting the eustachian canal as far as the tympanum, and then extending further in the direction specified. There was also a fracture reaching from the tympanum to the groove of the lateral sinus, thus dividing the aqueduct of Fallopius, through which the portio dura passes, and injuring that nerve; so as to account for the total loss of the power of motion on the left side of the face. The fracture was so imperfectly united that the broken parts of the bone were separated from one another during the working of the saw.

Case II.—*Concussion, probably with other injury, of the brain, and fracture of the base of the skull, succeeded by fits.*

Michael Malony, aged 20, admitted under Mr. Quain, January 3d, at two o'clock, A.M.: fell from a height of eighteen feet, through a hole in a fire-escape, directly upon the crown of his head. On his admission blood was flowing from an irregular wound of the scalp, and from his right ear. He was insensible, but could be roused by physical irritation; his feet were cold; the rest of the surface of his body was warm; pulse very small and compressible; the pupils were rather dilated, and the motion of the iris sluggish, though it acted under the influence of light. The patient vomited just before he entered the hospital. The skull was exposed, but without any fracture of the part in view. His head was shaved, and cloths dipped in cold water applied to it and the wound. Bottles of warm water were put to the feet, and the patient was covered with blankets.

10 o'clock.—Has been quiet during the night, and taken drink occasionally. He is peevish and irritable when roused. About an hour ago he was able to get out of bed, and empty his bladder. Pulse 90, weak and compressible; surface warm; stomach not disturbed; bowels confined.

> Ordered ten grains of chloride of mercury, followed by a dose of house medicine.

4th.—Has spent a quiet night. Pulse 70, somewhat fuller, but compressible; pupils dilated, yet iris moves under the influence of light: bowels constipated.

> Venæsect. ad ℥xvj.; Ol. Tiglii, m. j. Mucil. ʒj. 4tis. horis donec alv. respondeat.

5th.—Bowels opened freely. He is now more easily roused, and more sensible: face flushed; pulse 64, soft, and rather fuller.

> Hydr. Chlorid. gr. ij. 4tis horis. Hirudines xx. ad tempora; Empl. Canthar. ad nucham.

6th.—At 10 o'clock, P.M. attacked with convulsions followed by complete insensibility; stertorous breathing; foaming at the mouth; pulse 130, full and strong; pupils dilated, but contractile; feet cold. Bled to 18 oz. Pulse fell to 96. Patient remained stupid, and shortly afterwards had another fit, but less severe. Constipation.

> Ol. Tiglii, ♏ j. every hour till it acted; Ant. Tart. ¼ at similar intervals, and Calom. to be continued. Blood not buffy, nor cupped.

7th.—Bowels opened. Another fit at 3 A.M.

8th.—At 5 A.M. several fits, followed by stupor as before. Pulse 96, and rather full and compressible; pupils dilated, but contractile. Patient feels cold. Warm bottles to the feet: croton oil to remove constipation.

10 o'clock, A.M.—Had fifteen fits, which generally returned every ten minutes. Violent convulsive twitches of left arm; head and mouth drawn to this side; muscles of the face in violent action; and a catching noise made in breathing.

12 o'clock.—Fits continue. Bowels confined. Turpentine enema, and sinapisms to the calves. In one of the fits the left eye opened and shut with convulsive rapidity. Distortion of mouth; convulsive movement of the left arm and right leg.

Vespere.—Croton oil required for the constipation. The convulsions ceased about 6 o'clock. Bowels more open; urine passes freely. Patient nearly insensible, though he makes efforts when he has occasion to leave his bed. Feet cold; surface of body warm; pulse 86, and fuller; gums sore. Calomel discontinued.

9th.—No return of convulsions, but much the same in other respects; mutters "oh dear!" occasionally, and particularly when pressure is made on the epigastrium. Pulse small, 80; tongue not much coated. Ant. tart. discontinued. Abdomen to be fomented.

Intellects clearer, and patient more attentive to surrounding objects; pulse 110; no more fits; epigastrium tender.

> Hirud. xviij. ad epigastrium.

13th.—Has continued gradually to improve. Intellects clearer, and less pain in the head. Patient eats oranges in abundance, the first kind of food which he has taken subsequently to his admission, excepting diluents.

18th.—Some improper food given him by his friends yesterday has brought on pain in the right side of his head. His tongue coated, and bowels confined.

> Calomel, gr. v.; Mist. Salin. Aperiens 4tis horis.

19th.—Headache yet continuing, he was bled ad ℥xij., and the saline aperient mixture continued.

21st.—Twelve leeches applied to the temples; cold lotion to the head continued. Bowels open; wound healing, and bone covered by granulations.

23d.—Headache lessened, but now the patient has cough, with bronchitis. Mixture with Squills and Vin. Ipecac. prescribed, and a blister applied to the chest.

24th.—Bronchitis diminished. Has been getting deaf for the last two days in the right ear, from which there is a puriform discharge. Pupil of the right eye rather dilated.

> Hydr. c. Creta, gr. iv. ter die sumenda. Right side of head to be fomented, and meatus washed out with lint and warm water.

27th.—Deafness and discharge from the ear diminished; but little pain in the head now felt; tongue cleaner. Hydr. c. Creta continued.

February 3d.—Some return of pain in the right side of the head. Hirud. viij. ad tempora.

5th.—Feels quite well, and sits up a part of the day.

8th.—Sat up too long yesterday, and to-day has pain again on right side of head. Hirud. xij. ad temp.

Bowels open. Powders continued, as well as lot. plumbi acet. for ear.

18th.—Going on well. Pulse natural; tongue clean; no pain in the head.

Obs.—This case gives you a good illustration of certain effects sometimes arising from concussion of the brain, and probably other lesions with it, forming what may be termed a mixed case. The numerous fits of convulsions, somewhat resembling those of epilepsy, which attacked the patient, must have attracted your attention. Sir Benjamin Brodie has particularly adverted to them as an occasional consequence of injuries of the brain; and he regards them as more formidable in appearance than reality, as the patient, after they have subsided, frequently recovers without any unfavourable symptoms. Our patient was usually left in a state of stupor for some time after the fits, of which he had on one day not less than fifteen in rapid succession. The commencement of such attacks may take place directly after the accident, or, as in this instance, some days later; for the first fit was on the third day.

I believe, from what has occurred in several cases under my notice, that the statement of Sir Benjamin Brodie is correct, with regard to the cause of these fits of convulsions, viz. that they do not always depend upon simple concussion, but that a wound of the basis of the brain, which causes extravasation of blood on the surface of that organ, will frequently produce such convulsions.

In our case, the dilated pupils, and some of the other symptoms, seemed to indicate the co-existence of a degree of pressure with concussion; and little doubt exists in my mind respecting some lesion of the basis of the brain.

You find also in this case an instructive example of the long tendency to inflammation and mischief in the head after concussion, and of the necessity of persisting, for a considerable time after the accident, in rigorous antiphlogistic treatment, comprising general and local bleeding, active purgatives, saline aperients, with tartrate of antimony, the exhibition of mercury even so as to affect the gums, cold lotions to the head, and a most careful reduction of the diet.

The bleeding from the right ear, and some other parts of the history of this patient, would justify the suspicion of a fracture of the base of the skull as one of the complications of the accident; but whether this has really happened or not, we have no means at present of ascertaining; and the convalescent state of the patient makes it likely that no instruction on this point from a post-mortem investigation will be afforded.

The following particulars of a case which was brought into La Charité, at Paris, and under the care of my distinguished correspondent M. Velpeau, I have been favoured with by my friend and pupil Mr. Morton. As they may throw useful light on the diagnosis of fractures of the base of the skull, I avail myself of that gentleman's permission to bring them under your consideration.

Case III.—*Injury of the head—Fracture of the base of the skull.*

July 25, 1837.—Louis Jacques, æt. 50, was received into La Charité on account of injuries sustained by falling from a height of three stories. At the time he lost all consciousness; but after a time partially recovered his senses. There were two wounds of the scalp near the vertex, and one had laid the bone bare, which was fractured, though without much depression; and there was bleeding from the nose, mouth, and ears.

The next day the eyelids were swollen and blackened from ecchymosis. The right arm was found to be weaker than the left. The mind, though in some respects correct, was not quite perfect, nor collected. Pulse moderately strong. Tongue somewhat paralyzed. Leeches behind the ears, with low diet.

In lecturing upon this case, M. Velpeau expressed his belief that there must be a fracture of the base of the skull, which view he was led to adopt from the fact that, without direct violence, there had been produced ecchymosis of the eyelids, and bleeding from the ears, nose, and mouth. The inference was also strengthened by the complaint repeatedly made by the patient of a deep-seated pain in the neck, close to the basis cranii. M. Velpeau was in doubt whether the partial paralysis of the tongue and arm depended upon the severe commotion of the brain, or upon a slight extravasation of blood upon the surface of that organ.

The prognosis was against the man's recovery, the only chances of which appeared to M. Velpeau to be in the strict employment of antiphlogistic measures.

26th.—The man is quite sensible, and able to sit up; pulse quick, yet softish; but the deep-seated pain in the neck is worse.

28th.—The patient, though quite sensible in the morning, died before night. A coagulum of blood was formed on the same side as the paralysis, and an extensive fracture of the base of the skull.

OBS.—This case, I have said, is instructive in relation to the diagnosis of fractures of the base of the skull. The remark made by M. Velpeau seems to me valuable, viz. that, when bleeding from the nose, mouth, or ear, follow an injury of the head, and has not been occasioned by a direct blow on those parts, or when an ecchymosis takes place in the eye-brow after such an accident, though the part itself has not been immediately struck, these circumstances are important considerations, corroborating the suspicion of there being a fracture of the base of the cranium, implicating the petrous portion of the temporal bone, or the roof of the orbit. The observation is valuable, because in plethoric and young persons bleeding from the nose and mouth will often come on from a trivial blow on the face, unattended with further mischief, and quite independent of mischief to the skull or sinuses of the brain; but such hæmorrhage, and also ecchymosis of the eyebrow, without any direct violence to the parts which are the seats of these occurrences, surely are points in the history of the case highly deserving of attentive reflection.

SAINT MARYLEBONE INFIRMARY.

Contraction of the Biceps Muscle.

—— HALL, aged 55, an omnibus-driver, was admitted an in-patient under the care of Mr. Phillips. The account he gave of himself was, that more than two years ago, he fell, or was thrown, from his seat, and injured his arm, about the elbow; that for some weeks he was unable to return to his work; that when he did, his arm was not quite well, and that he could not make it quite straight. He continued to follow his calling, but, from month to month, he found that the arm was more and more flexed. When he appeared at the Infirmary, the forearm formed with the arm an angle of about fifty-six degrees. Beyond this, extension could not be carried further than five or six degrees, and even the attempt to accomplish this was attended with much pain. It was very evident that the obstacle to further extension was the biceps muscle; it was exceedingly tense and hard, and the indicator finger could readily be passed under the tendon and aponeurosis at the bend of the arm. The history of the case induced Mr. Phillips to conclude that the shortening of the biceps had been occasioned by low inflammatory action set up after the injury; that before this action was dissipated he had resumed his former occupation; and that the constant state of flexion required in driving through the streets had singularly favoured the disposition to contract; that the affection was not functional or spasmodic, but depended upon change of structure. The mode of remedying the deformity which appeared to promise most success was by a division of the tendon and aponeurosis, which had undergone contraction. The patient was not a favourable subject for any operation; though not a drunkard, he was accustomed to drink four or five-and-twenty glasses of beer daily. He was placed on full diet, and had two pints of ale daily. The operation was easily performed; a narrow tendon knife was passed on the flat, at first under the tendon, which was divided; it was afterwards passed in the same manner under the aponeurosis, and that was also divided. As soon as this was accomplished, the arm could be placed in an almost straight position. A good deal of nervous excitement was occasioned by the operation, to relieve which he had, immediately, forty minims of Liquor Opii Sedat. in a pint of porter. No efforts at permanent extension were made for three days. After that, he carried a four-pound weight in the hand for half an hour three times a day. By this plan the arm was kept in almost complete extension, and the discomfort of permanent extension was avoided. The case proceeded very satisfactorily, as far as extension was concerned, but he complained of a good deal of superficial pain, which was, however, dissipated by the application of compression, and a belladonna plaster, around the forearm. Last week he was discharged cured. Before he was dismissed the arm was carefully examined; the biceps muscle had lost all its former hardness, and the continuity of its tendon and aponeurosis appeared to be as complete as possible; and flexion of the forearm could be accomplished with as much rapidity and force as before the occurrence of the accident.

Strangulated Femoral Hernia.

—— Clarke, aged 52, a helper in the Infirmary, consulted Dr. Harrison in consequence of constipation, which had resisted simple means. He prescribed a dose of calomel and opium, to be followed by a black draught. On the following day, at his visit, he found the constipation unrelieved, and she complained of some nausea and abdominal tenderness. In passing the hand over the abdomen, Dr. H. detected an irregularity and increased tenderness at the umbilicus, and he requested Mr. Phillips to look at it. It was examined, and found to be merely a projection consequent upon distended parietes from child-bearing. The pulse was 76. She was ordered a warm bath, and enemata of beef-tea and olive-oil, until the bowels were moved. On the following day there was no relief to the bowels; the pulse was 88, the tongue was more coated; there was some tympanitis, and there had been vomiting of fæcal matter. An hour before the visit, she had accidentally discovered a tumor in the femoral region, which she says she is confident was not present on the previous day, when she was put into the bath. The tumor was soon found to be a femoral hernia, and Mr. Phillips advised her to submit to the necessary operation, which was performed the same afternoon (January 1st.)

The following peculiarity occurred during the operation: the sac was so extremely ill defined, that it was impossible, with any certainty, to recognize it. It was very carefully opened, and, what appeared to be a gland, immediately projected through the opening which was made in it. Further examination showed that the gland-like mass was a small portion of omentum, and under it a knuckle of intestine was found: but not a single drop of fluid was there in the sac. With much difficulty a shallow director was insinuated through the stricture, and a blunt-pointed bistoury was passed along it; an incision was made, and was directly followed by a gush of at least five ounces of darkish serum; a good proof of the tightness of the stricture, which prevented the passage of a drop of this fluid into the hernial sac.

The operation completed, the patient was put to bed, and ordered to have turpentine fomentations to the abdomen, and to take nothing but a little thin gruel. In four hours after the operation she had a copious alvine evacuation, succeeded soon by a second which was more scanty.

2d, 8 A.M.—Tympanitis as well as tenderness increased; nausea very oppressive occasionally; pulse full, 88. Ordered to take

Hydr. Submur. gr. ij.; Opii, gr. ¼. 4tis. and to have Ung. Hydr. ʒi. rubbed in every six hours. The turpentine fomentation to be continued.

12 A.M.—Pulse harder, 90.

V. S. ad ℥x.

4 P.M.—Pulse has acquired its former force.

V. S. ad ℥xiv.

The blood on each occasion was cupped and buffed.

11. P.M.—No action on the bowels; tympanitis increased; pulse 90; complains of thirst.

3d, half-past 5 A.M.—Has vomited twice.

Enema Terebinth.

10 A.M.—Ex. Coloc. Comp. gr. iij.; Ex. Hyoscyam. gr. i. 2dis horis ad plenam alvi solut.

3 P.M.—Has vomited fæcal matter, largely, twice; tympanitis increased; pulse 96.

Enema c. Ol. Ricini, ℥ij. statim, et rep. 2dis horis si opus fuerit.

12 P.M.—Two enemas were administered, and both have been retained.

Enema Tereb. statim.

4th, 8 A.M.—No sickness during night; one copious evacuation from the bowels; pulse 90.

3 P.M.—No further evacuation.

Sp. Tereb. ℥i.; Ol. Ricini, ℥ij.; Liquor Potassæ, ʒij.: fiat Enema statim injec.

7 P.M.—Two copious stools followed the last injection; pulse 96; much thirst; gums becoming tender; tympanitis somewhat lessened.

Mist. Effervescens. To suspend the Calomel.

5th, 9 A.M.—Three stools during night; pulse 86; abdomen less tumid: tendency to diarrhœa: to have an opiate enema if necessary.

1 A.M.—Several very liquid stools since 9 o'clock.

Pulv. Kino Comp. gr. viij. 4tis.

10 P.M.—Three stools since last visit.

Tinct. Catechu, ʒiss.; Tinct. Opii, Min. xlv.; Jusculi, ℥iij.: fiat Enema statim injiciatur.

6th, 9 A.M.—Has had a good night; tongue improved; pulse 88; tympanitis stationary.

7th, 9 A.M.—Going on better; pulse 84.

2 P.M.—Two liquid stools.

Repr. Enema u. s.

9 P.M.—Two liquid stools.

Repr. Enema.

8th, 9 A.M.—Liquid stools persist.

Sumat. Ol. Ricini, ʒiv.; Liquor Opii Sedat. Min. vj. statim. This brought away three stools.

From this time the patient went on well, and rapidly became convalescent.

In this case there are two curious features: a perfectly dry sac, and a gush of serum from the abdominal cavity upon the incision of the stricture; and a favourable termination, although there was abundant fæcal vomiting 44 hours after operation.

CASES OF PARTIAL AMAUROSIS*.

CASE I.—*Partial amaurosis—Inability to distinguish certain colours.*—Mary Bishop, æt. 20, unmarried, cigar-maker, admitted February 9, 1839. The early history of this case has already been given by my colleague, Dr. Fox; it will be sufficient, therefore, to recapitulate here merely its prominent features. The patient stated that she had suffered, previous to admission into the hospital, two attacks of cerebral disease, one in the spring of 1837, and the other in the winter of 1837-38. After recovery from the first attack, objects for a time appeared to her double. The second attack left her entirely blind, in which condition she continued for four months. After this her sight began to return, and at the period of her admission into the hospital she could read large print; as the heading of a newspaper. She was of a short, robust stature, full habit, very dark complexion, black hair and hazel irides, flushed face, colour of her face at times almost of a purplish hue; catamenia suppressed. When she first came under my notice, which was in May, 1839, she had been largely depleted, and had taken remedies for the restoration of the menstrual discharge, under which treatment her sight had improved.

Whilst examining her at this time to ascertain the degree of vision she possessed, her reply to one of our questions led us to suspect that she was unable to distinguish colours. When asked whether she could see the figure in her dress, which was a calico one with red spots, she replied, "Yes, I see the *brown* spots." Our attention thus directed to the subject, we soon ascertained that while she could distinguish forms, even of small size, with accuracy, her perception of colours was exceedingly imperfect. Repeated and careful investigations during this and on several subsequent occasions, satisfied us that the only colours which she knew with certainty were *yellow* and *blue*. Nearly all other colours she termed brown, or hesitated to name, designating, however, their shades or intensity of colour accurately. Thus, a deep red she called a dark brown, a bright green light brown, and a very pale pink a very light shade of brown.

The patient was not at all sensible, when we commenced the investigation of her case, that she laboured under any particular defect in distinguishing colours. She had noticed, she said, however, that grass and roses did not appear as they formerly did to her; the latter especially did not seem of their natural colour; but as her sight was imperfect, she considered this as a natural consequence. She remembered, when questioned, that as her sight began to return, *the first colour she perceived was yellow*. This fact is of much interest, and she stated it with a degree of confidence, and mentioned some particulars which lead us to believe it to have been the case. She asserted most positively also that she had formerly been as well able to distinguish colours as any other person.

With a view to a revulsive action on the brain, and also to re-establish the catamenial flow, the patient was ordered pills of blue mass, rhubarb and aloes, every alternate night, in a dose to purge actively; mustard pediluvia at bed time, and a blister to the sacrum. Two days before her regular period I ordered, in addition, mustard cataplasms to be applied nightly to the inside of her thighs, and the same diluted with an equal part of flour to her mammæ.

On the 29th of May her catamenia appeared and flowed copiously, but continued only for a single day. It was followed, however, by very marked improvement in vision.

Nov. 30th.—Discharged this day, with her vision restored, and in good health; the catamenia, however, still suppressed.

REMARKS.—The feature of most interest in this case is the inability to distinguish colours. This is, we believe, the first example hitherto recorded of this inability having resulted from disease, or been coexistent only with it. As a natural defect, the power of distinguishing forms being perfect, it is not rare. Several instances of this have come under our own observation, and not a few others have been mentioned by writers. Such of these last as have been recorded with sufficient details to furnish data for comparison, viewed in connection with the case we have recorded, lead to conclusions, which it may not be uninteresting to notice.

1. As a natural defect, inability to distinguish colours may exist in different degrees.

2. In the worst degree, the individual is able merely to distinguish shades,—the perception of colour is entirely absent. Examples of this are afforded in the two Harris's, who could distinguish a striped riband from a plain one, but could not perceive the difference between any one colour and another, except as darker or lighter, and in Dr. Elliotson's second case.

3. In the next degree the individual can distinguish only a single colour, and that

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* Dr. Hays, in the American Journal of the Medical Sciences, for Aug. 1840.

colour is always yellow. Thus Dr. Butter states that Robert Tucker knew to a certainty *yellow* only; and it appears that the boy, whose case is recorded by Dr. Nicholl, was in the same condition. Now it may be called to mind that Mary Bishop states, when her sight improved, the first colour she recognised was yellow.

CASE II.—*Partial amaurosis from excessive use of the eye—cure.* David Lang, æt. 42, native of Scotland, weaver, unmarried, admitted October 2d, 1839. Habits very temperate; for the last four years has abstained from animal food; has worked hard during the day at his business, and devoted the evenings, until a late hour, to reading and writing. Sight commenced failing about eight weeks ago, since which it has been gradually growing worse. At present cannot see sufficiently well to weave, or read ordinary sized type. Can distinguish, however, large letters, as the heading of a newspaper. Sees better at night than during the day. Person spare, rather short; face pale; irides light blue, active; no headache or sense of fulness of head; pulse natural. Slight greyness of pupil, but three images of of a candle distinctly to be seen. Ordered the following:—

℞ Mass. Hydrarg. gr. vi.; Pulv. Rhei, gr. viij.; G. Aloe, gr. i. M. ft. Pilul. No. iv. To be taken at bed-time.

Oct. 5th.—Pills have purged him actively. Ordered

Strychnia, gr. ij.; Acid Acet. ʒj.; Aq. Puræ. ℥j. M. ft. collyrium. A few drops on the eye daily.

When he appeared before the committee for the month, to be discharged, he read for them, with readiness, the smallest print of a newspaper, and stated that he saw as well as ever. He was so delighted with his cure, and grateful for it, that he insisted on presenting a small sum he possessed to aid the funds of the institution.

REMARKS.—The slight evidences of congestion which existed in this case induced us to trust to revulsive purgatives for its removal, and to commence too early with the use of strychnine. The mistake was, however, soon rectified. Cups to the nucha and back of head, cold water douche to the head, with mustard pediluvia, and purgatives, were then resorted to, and with immediate benefit. The strychnine was then recurred to, and doubtless aided in the cure.

ADVANTAGE OF APPRENTICESHIPS.

To the Editor of the Medical Gazette.

SIR,

I HOPE you will spare room, in your valuable periodical, for a few remarks elicited by your able leader on the "apprenticeship system" in the last GAZETTE, and, ere the knell of that system is sounded, allow a feeble note to be raised in its praise. You are doubtless aware, Mr. Editor, that the effect of the late prescribed course of medical education has been to diminish very materially the number of pupils in the country, and the smaller towns; and if the apprenticeship system be entirely annulled, all the medical students will begin and complete their studies in the metropolis, or the larger provincial towns where the required lectures are given. But would not a serious injury be thus inflicted on the smaller hospitals and country practitioners? The cases occurring in those institutions would not be rendered available for the purposes of medical education, and thus many valuable opportunities of acquiring knowledge would be lost; for it is not, perhaps, too much to say, that the few pupils who act as dressers in a provincial hospital, under the immediate eye of their masters, are as likely to acquire valuable information as those students who, in a crowd, attend the practice of the larger hospitals without an opportunity of exercising surgical manipulation; and the "habit of observing, thinking, and acting for himself," which by the Quarterly is considered so essential to make a good practitioner, is as much encouraged in him who quietly dresses patients from day to day, in a smaller provincial infirmary, as in him who, during the bustle of surgical peregrinations in large hospitals, attends, even more than is customary, to the cases presented to his notice: and I would, moreover, add, the responsibility incurred by visiting and prescribing for the patients who partially come under the care of pupils in the country during their apprenticeship, excites more interest, and enforces habits of attention and reflection more effectually, than where such responsibility does not exist.

But the student who is designed to practise in the country (and many must) will be, in other respects, a loser by the entire abrogation of the apprenticeship system. He will lose all that salutary restraint, and that training of the mind to undergo privations, which are so necessary for youth. He will lose an insight into the management of private patients, the customary charges and book-keeping, and all the drudgery unavoidably connected with the practice of medicine in country districts. He will be unable to form an estimate of the situation which he must afterwards fill, or of the difference between the study of medicine as a branch of learning, and the practice of it as a profession by which he is to live; so that, when commencing business in the country, after an attendance on lectures and at hospitals alone, where he has been enabled to follow the full bent of his inclinations, he will probably find that he cannot comfortably submit to the necessary constraint on his feelings and actions which would contribute so much to his success; that he cannot well manage the whims and caprices of private patients, and other little practical details; that, in short, he cannot endure, without spending a miserable existence, the inconveniences and ills of a profession which he was not prepared for; while, to his astonishment, his more plodding, but, perhaps, less scientific neighbour, inured to the hardships of an apprentice, bears the midnight watch and laborious journey with scarce a murmur, and puts up with those toils and discomforts which, in early life, he was accustomed to, as a matter of course. There is, indeed, Mr. Editor, something besides medical knowledge necessary for ordinary provincial practice, namely, a mind schooled and trained to submit to that which must be borne; and if the apprenticeship system must be given up, which, under your auspices, I trust it will not, I much doubt whether the country practitioners of the succeeding generation will be more happy themselves, better suited for their situations, or for the service of the public, than those of the present day. But I am trespassing too much on your kindness, and therefore, hoping that the attention of provincial practitioners will be awakened to the subject I have touched upon, I leave the matter in abler hands.

I am, sir,
Your obedient servant,
A Constant Reader.

Gloucester, Feb. 2d, 1841.

NOTE FROM MR. HALL.

To the Editor of the Medical Gazette.

Sir,

In the Medical Gazette of yesterday, I find the following note in a communication from Dr. Hocken:—" Mr. Hall, in his paper on Strabismus, in the Med. Gazette for Jan. 22d, which contains many valuable facts, has made perfectly free with the author's ideas on the etiology, pathology, and form (?); and this without one word of acknowledgment. In many cases, he quoted nearly word for word: for instance, ' An ulcer of the cornea may be the first originating cause of strabismus, &c. &c., the diagnosis of double squint, &c.;' and yet calmly palms them off as ' the result of his own original experience.' "

Could I suppose that all who may read the above would take the trouble to refer to the several papers of Dr. Hocken and myself, I should not hesitate to pass over the accusation in silence. As the matter, however, is too unimportant to interest any but the parties immediately concerned, I may observe that I was not aware of my being indebted to Dr. Hocken for any ideas whatever, and therefore was not likely to offer " one word of acknowledgment." My paper consists of such cases as have come under my own observation, with some of the inferences to which they gave rise, and was written without reference to any views of Dr. Hocken.

By the use of inverted commas, one would suppose the passages to be quotations. I never made use of the words in question, and should have thought it ridiculous to speak of " the result of my own original experience."

I am, sir,
Your obedient servant,
C. Radclyffe Hall.

Manchester Royal Infirmary,
Feb. 20, 1841.

" SUDDEN DEATH."

To the Editor of the Medical Gazette.

Sir,

Allow me through the medium of your journal to ask the opinion of yourself, or any correspondent that may be disposed to favour me with an answer, as to " what is to be done in a case of sudden death ?"

Suppose a medical man, on being summoned to a person who has " fallen down in a fit," (to use a common expression) finds his patient in a state of evidently fast approaching dissolution, with no pulsation of the radial artery, and scarcely any of the heart, with inspirations feeble and at long intervals, and the face to all appearance perfectly exsanguine, indicating a rupture of the aorta or one of the contiguous large vessels, by which the blood circulating in the head has been suddenly diverted to the chest, and thus distinguishing it from cerebral apoplexy, the prominent symptoms of which are the congested and swollen countenance, stertorous respiration, and labouring pulse. In such a case is it not unscientific and malpraxis to bleed ? We all know that the prevailing idea among the public is, that bleeding should, in all cases of sudden death, be immediately resorted to, to restore the patient; but in the case that I have endeavoured to describe, will it not rather hasten death (should life not be quite extinct on our arrival) by causing another outlet of blood from the system ? And is it not " infra dignitatem" that, to please the ignorant ideas of the public, and more especially to avoid the censure of the sapient juries that often sit in judgment on our conduct, we should act in direct opposition to science and our own consciences; though it is immaterial to the patient in the present instance, as recovery is quite impossible. Nay, to go further, I am confident that I am not the only one by many (for I must plead guilty to the fact) who have performed venesection, knowing at the same time that the subject of the operation was dead, to escape the censure that would otherwise be so liberally bestowed by persons quite ignorant of the matter.

Now in the latter case, as well as the former, where life is not quite extinct, should we not be quite justified in refusing to bleed, though urged by the by-standers so to do?

I am, sir,
Your obedient servant,
"Inquisitor."

Feb. 23, 1841.

VACCINATION.

To the Editor of the Medical Gazette.

Sir,

I am required by my vaccination contract with the Guardians of the East Ashford Union to specify what cases vaccinated by me have been successful or unsuccessful; and in the former case to sign a printed form of certificate furnished to every individual at the time of vaccination, to the effect that he or she has passed "*regularly* and *successfully*" through the disease.

Now, in the first case which was vaccinated with lymph sent by post from the National Vaccine Establishment, only one vesicle arose (four punctures were made), and this one, although otherwise regular in its course, was about forty-eight hours later than usual in the development of its stages (this I have continually observed when the virus has not been inserted in its recent liquid state). The second case was vaccinated from the above, and only one vesicle, similar in its history, was the result. The third and fourth had two vesicles, and the fifth three. In each case four punctures were made.

I am anxious to know how I should report the result of the first four cases; for although many surgeons maintain that whoever has had one mature vesicle has all the advantages which vaccination can confer, I know that others, of high authority, consider the safety of the vaccinated to depend very much upon the degree of intensity with which they may have been affected: such is my own private opinion; but as many other surgeons must have had similar cases, I should be glad to know from such of your readers as have paid most attention to the subject (Dr. Gregory, for example) whether surgeons vaccinating according to the provisions of the new act may best fulfil its intentions by putting such cases as I have described in the "successful" or "unsuccessful" column of their return.

I remain, sir,
Yours with much respect,
Henry Crawford.

Canterbury, Feb. 23d, 1841.

FEAR OF PHTHISIS IN SICILY.

So far as I am able to judge from what I have seen or been told of the climate of Sicily, I should consider it the best in Europe for a delicate patient; and yet, by reason of a strange prejudice on the part of the natives, that island is rendered almost entirely useless in this respect. They have, unfortunately, taken a notion into their head, I believe without any foundation, that consumption is not only occasionally infectious, but that it is always so, even worse than the plague or any other disease. Consequently they will not admit a person suspected of having a tendency to pulmonary complaints into their houses. If any one afflicted with this malady should die among them, a ban is put on the house, its furniture destroyed, and no one allowed to inhabit it for a period of many months. As this is ruinous to inn-keepers, and inconvenient to all, and as every native firmly believes in the truth of this persuasion, it becomes impossible for any consumptive patient to find house-room in Sicily. I have even heard of instances of such persons being allowed to perish in the streets, or in the country roads, to which they were driven by the excessive terror of the inhabitants.—*Patchwork*, by Captain Basil Hall, vol. iii. cap. 2.

SHOULD INVALIDS GO TO ITALY?

In such hopeless cases it is often difficult to decide what is best to be done; but from what I have seen I should scarcely advise the friends of a delicate invalid to travel in Italy. Even a person in strong health is sure to encounter multifarious annoyances, which, though he manages to laugh at, and tries to make light of, must be almost intolerable to a worn-out frame, and more than proportionably depressed state of spirits. The naked floors of brick, or even of marble; the damp, and not always clean, beds; the sour bread; the oiley cookery; the sluttish attendance; the mosquitoes, fleas, &c. together with the total want of many small, and some great comforts, which, in England, have become necessaries of life, render Italy, or indeed almost any part of the continent, very little suitable for a poor, broken down, attenuated English invalid.—*Patchwork*, by Captain Basil Hall, vol. iii. cap. 9.

[In spite of this enumeration of hardships, we conceive that travelling is the best of all remedies for many an invalid. But let the patient take with him to Italy a pair of sheets, a mosquito net, and a spirit of tolerance.]

SIR ASTLEY COOPER.

To the Editor of the Medical Gazette.

SIR,

MANY inquiries having been made as to the appearance of a Life of Sir Astley Cooper, I beg to inform you, for the information of the profession, that this distinguished surgeon has left ample materials for a most interesting biography, now in the hands of his nephew, Bransby Cooper, Esq., by whom the whole will be arranged and prepared for speedy publication.

A new edition of his beautifully illustrated work on the "Testis," which received the author's final additions, has passed through the press; the plates are now in process of colouring, and the volume will be issued during the present month. His work on "Dislocations" I am now preparing to publish of an 8vo. size, with the plates redrawn, engraved on wood in the best style, and printed with the text; carefully edited, with important additions, by B. Cooper, Esq. This practical work will be offered at a price to make it available to every student of surgery.—I am, sir,

Your obedient servant,
JOHN CHURCHILL.

Princes Street, Soho.
1st March, 1841.

LONDON HOSPITAL.

DR. COBB has been elected Physician to the London Hospital, in the room of Dr. Frampton, resigned; and Dr. Pereira has been appointed Assistant-Physician, in the place of Dr. Cobb.

ROYAL COLLEGE OF SURGEONS.

AT a Meeting of the Council, on Monday, the 22d inst., James Moncrieff Arnott, Esq. Surgeon to the Middlesex Hospital, was elected a member thereof, in the vacancy occasioned by the decease of John Howship, Esq.

LIST OF GENTLEMEN ADMITTED MEMBERS.

Friday, February 26, 1841.

J. P. Davies.—A. F. Macaulay.—E. O. Golding.—F. Williams.—T. Taylor.—W. A. N. Cattlin.—J. W. Turner.—J. C. S. Jennings.—H. Fayle.—T. Potter.—T. W. Hiron.

APOTHECARIES' HALL.

LIST OF GENTLEMEN WHO HAVE RECEIVED CERTIFICATES.

Thursday, Feb. 25, 1841.

R. Sharpe, Cheshunt, Herts.—W. E. Boddington, Rugby, Warwickshire.—H. H. Dearsley.—C. A. Holmes, Hull.—J. A. Carrathus, Cornwall.—J. C. Bonnett, London.—J. J. Hely, Manchester.

A TABLE OF MORTALITY FOR THE METROPOLIS,

Shewing the Number of Deaths from all Causes registered in the Week, ending Saturday, the 20th February, 1841.

Small Pox	45
Measles	6
Scarlatina	13
Hooping Cough	49
Croup	4
Thrush	3
Diarrhœa	2
Dysentery	1
Cholera	0
Influenza	4
Typhus	23
Erysipelas	10
Syphilis	1
Hydrophobia	0
Diseases of the Brain, Nerves, and Senses	162
Diseases of the Lungs, and other Organs of Respiration	254
Diseases of the Heart and Blood-vessels	23
Diseases of the Stomach, Liver, and other Organs of Digestion	78
Diseases of the Kidneys, &c.	2
Childbed	11
Ovarian Dropsy	1
Diseases of Uterus, &c.	3
Rheumatism	3
Diseases of Joints, &c.	6
Ulcer	0
Fistula	0
Diseases of Skin, &c.	0
Diseases of Uncertain Seat	125
Old Age or Natural Decay	98
Deaths by Violence, Privation, or Intemperance	23
Causes not specified	4
Deaths from all Causes	1056

METEOROLOGICAL JOURNAL.

Kept at EDMONTON, *Latitude* 51° 37 32" *N. Longitude* 0° 3' 51" *W. of Greenwich.*

Feb.	THERMOMETER			BAROMETER.		
Wednesday 24	from 30	to	40	30·20	to	30·23
Thursday . 25	32		43	30·21		30·00
Friday . . 26	35		48	29·83		29·60
Saturday . 27	32		43	29·63		29·75
Sunday . . 28	29		43	29 78		29·64
March						
Monday . . 1	30		43	29·53		29·86
Tuesday . 2	28		46	29·61		29·80

Prevailing wind, N.E. and N.W.

On the 24th and 25th a general overcast; rain fell during the evening of the 24th. The 26th cloudy; rain in the morning. The 27th generally clear; frequent showers during the day. The 28th ult., morning clear, otherwise cloudy. The 1st inst. overcast; rain at times during the evening. The 2d, morning clear, otherwise overcast; raining all the afternoon and evening.

Rain fallen, ·17 of an inch.

CHARLES HENRY ADAMS.

NOTICES.

The letter of "A Friend," addressed to Mr. C., has been received.

We regret that the length of the paper from the "Gloucestershire Medical Association" has obliged us to omit it.

No advantage could now result from publishing the communication of "Medicus."

WILSON & OGILVY, 57, Skinner Street, London.

THE
LONDON MEDICAL GAZETTE,
BEING A
WEEKLY JOURNAL
OF
Medicine and the Collateral Sciences.

FRIDAY, MARCH 12, 1841.

LECTURES
ON THE
PRINCIPLES AND PRACTICE OF PHYSIC,

Delivered at King's College, London,

BY DR. WATSON.

LECTURE XXV.

Hypertrophy of the brain: — Atrophy. Acute Hydrocephalus: premonitory signs; different modes of attack; stages of the disease: anatomical characters; causes.

Hypertrophy of the brain.—There is a very curious morbid condition of the brain, to which I shall advert before I take up the consideration of certain cerebral diseases as they occur in *children*. The condition of which I am about to speak I was totally ignorant of till I had been for some years in practice. In the spring of 1833 I admitted a young woman, 19 years old, into the Middlesex Hospital. Her countenance was sallow, and her lips pale; and she complained of pain in her chest and limbs, of great and increasing debility, and wasting, and of nightly perspiration. She had some cough, and a frequent pulse; and although no morbid sounds were audible in her lungs, I suspected that they might contain small or scattered tubercles. She had been in the hospital scarcely a week, when she had a violent fit of epilepsy; and when she was somewhat recovered, she told us, for the first time, that she was *subject* to such attacks. The convulsions recurred on the same day, and she became insensible, and remained so during the whole of the next day, and till the evening of the day after, when she died. During this period of insensibility she had many convulsive fits; the pupils were dilated, the pulse 100, small and feeble. Leeches were applied to the temples, a blister to the neck, and afterwards to the shaven head, and other measures were used; but in vain.

When the surface of the brain was exposed by the removal of the skull-cap, and of the dura mater, it was observed that the convolutions were remarkably flattened, so that the little furrows between them were nearly effaced; and the surface of the arachnoid membrane was perfectly dry. These are not very unusual appearances: I had often seen such before: and I ventured to say that we should find some cause of strong pressure in the central part of the brain; effusion of serum into the ventricles, or a large extravasation of blood. But to my great surprise, and much to the discredit of my prophecy, we found nothing of the kind; but the ventricles were smaller than natural, and contained scarcely any moisture. The skull-cap was afterwards examined, and the bone was found to be uncommonly thick, dense, and heavy; and its inner surface, without being rough, was very irregular. I regret that, in this examination, the state of the blood-vessels of the brain, and the consistence of the cerebral matter itself, were not particularly noticed. In the record made at the time by my clinical assistant, it is merely stated that the brain was otherwise healthy. There was no disease in the lungs.

This dissection interested me much, for I had never seen, nor heard of, any thing like it before. But upon looking into some modern authors, I discovered that the same phænomena had been noticed by two or three observers, who had very properly (as it seems to me) considered them as the result of *hypertrophy* of the brain. There is a very good memoir upon the subject, by M. Dance, published in the fifth volume of Breschet's *Répertoire d'Anatomie:* and Andral gives an account of the disease in his *Pathology.* It appears that Morgagni had not overlooked it, for he speaks of instances in which the brain seemed too big for its bony enclosure. When, in these cases, the skull is sawn through, the upper loose portion of bone starts up, as if moved by a spring, and the edges of the bone remain widely apart. Laennec, also, in *Corvisart's Journal*, states that upon opening the bodies of persons whom he had thought affected with hydrocephalus, he had been surprised at finding a very small quantity only of fluid in the ventricles, while the convolutions on the surface of the brain were strangely flattened; proving that the cerebral mass had undergone strong compression, which could only have been occasioned by its preternatural volume, and undue nutrition.

Besides the characters I have mentioned, the hypertrophied and compressed brain is firmer and tougher than natural; it contains but little red blood; and sections of it are seen to be unusually dry and pale.

In several of the cases of hypertrophy of the brain recorded by authors, the patients had suffered epileptic fits, or rather paroxysms of convulsion; and in some of them the convulsions terminated in paralysis. Andral states that the intellectual faculties have been observed, in some instances, to become dull and obtuse. Many of the patients were subject to severe headaches. All these symptoms are common to various cerebral complaints. The diagnosis of this rare disorder can be no better than conjectural; and its treatment we have still to seek.

Andral remarks, what is very true, that hypertrophy of the brain, *i. e.* an undue and disproportionate development of that organ, may, and does happen, without giving rise to any morbid phænomena at all. But, in such instances, the *brain-case* is equally enlarged in capacity; so that no pressure upon the cerebral mass arises from its own præternatural growth. It is only when the brain increases faster than the bony sphere which contains it, that the hypertrophy becomes a disease. In my patient there was also, in one sense, hypertrophy of the skull; the bone was considerably thicker, and more compact and heavy, than is usual; but the capacity of the cavity had not undergone a proportional augmentation: nay it might, for any thing I know, be diminished in consequence of the increased thickness of the bone; the case may have been one of concentric hypertrophy of the bone, without any fault of the brain itself: but what makes this the less probable is, that in other cases the skull has been found of the natural thickness and density; but too small for its contents.

It is of some importance that you should be aware that the brain, and its case, may be extravagantly developed without there being any disease, or any symptoms of disease. M. Scoutetten gives an instance of this which he observed in a child five years old. Its head was as large as that of a well-grown adult person. The skull was from a line and half to two lines in thickness. The dura mater adhered firmly to the bone, and the cerebral mass exactly filled up the cranial cavity. The superior and posterior part of the brain was developed beyond measure, so that to reach the ventricles it was necessary to make an incision nearly three inches in depth. There was nothing unusual to be remarked in any of the cerebral functions of this child; it was just like other children of the same age in respect of intellect. It died of acute inflammation of the bowels.

The late Dr. Sweatman met with just such another child a few years ago: and I refer to his description of it the rather, because cases that occur near home are always more interesting, and satisfactory, than those which we merely read of in foreign authors. Dr. Sweatman had never read of any thing of the kind: but in August 1834, a little boy, two years old, was brought to him on account of the size of his head. It had been gradually increasing from the age of six months, till it had become so large as by its weight to prevent the child from continuing long in the upright posture. The boy was active and lively, though thin. He never had had any fit or convulsion; but occasionally seemed uneasy, and then would relieve himself by laying his head upon a chair. He had never squinted, nor was he subject to drowsiness, or startings during sleep; and his pupils contracted naturally. His appetite was good, and all the animal functions were properly performed. Dr. Sweatman got Mr. Mayo to see the child with him; and they both set it down as a case of hydrocephalus, but agreed in thinking that in the absence of symptoms it would be wrong to risk disturbing his digestive organs by active medicines. In the early part of 1835 the child died of inflammation of the chest, and Dr. Sweatman and Mr. Mayo examined the head. I here shew you a cast of it. It measured, from ear to ear, over the vertex, twelve inches; from the superciliary ridges to the occipital, thirteen inches; and in circumference twenty-one inches. The anterior fontanelle, which was quite flat, measured across its opposite angles two inches and a quarter by one and a half; the posterior fontanelle was completely closed, as was the frontal suture. There was no absorption of bone at any part; on the contrary it was becoming thicker. The dura mater adhered with great firmness to the skull; and a layer of false membrane, as big as a crown-piece, was found upon its upper and anterior part. Beneath the arachnoid at that part there was slight jelly-like effusion. In all other respects the organ was sound. The convolutions were perfectly distinct, and retained their proper rounded shape. All the ventricles were found empty, and not dilated. The surfaces, however, of the medullary matter, exposed by different sections, presented very unusual vascularity. The lesson we learn from cases of this kind is, that we are not to regard every child that has a very large head as a hydrocephalic child; and especially that we are not to inflict upon such a child a course of mercury, or other active remedies, unless some morbid symptoms appear. The *nimia cura medici* may in these, as in many other cases, destroy health; produce disease where none existed before.

Atrophy of the brain.—Having told you what I know of *hypertrophy* of the brain, it is proper that I should say a word or two respecting the opposite condition; of *atrophy* of the cerebral mass. There are two forms of this affection: one is congenital, and results from imperfect development, or an arrest of development of the brain in its fœtal state. In the other the change appears to take place in consequence of disease, either in the membranes of the brain, or perhaps in its arteries; though the effect of disease in the arteries is usually softening, which *is* a species of atrophy. But in the atrophy to which I am now alluding, the *volume* of the atrophied part is diminished, not its *consistence*. And the diminution of size may extend only to a few convolutions; or it may be most manifest in the interior of the organ; in the optic thalami and corpora striata for example. There is still another alteration to which some have applied the term atrophy, though improperly I think: I allude to those cases, which I shall speak of more particularly soon, in which the form and disposition of the cerebral substance is altered, the convolutions being unfolded, and the nervous matter spread out by a large collection of fluid in the interior cavities of the brain, constituting the disease called *chronic hydrocephalus*. I have not much to say upon what may be styled atrophy *proper* of the brain: that it will give rise to symptoms we cannot doubt, but that it shews itself by any peculiar or characteristic symptoms is what I have not discovered.

I shall content myself, on this subject, with showing you Cruveilhier's representation of a strongly pronounced example of atrophy of the entire cerebrum on one side. The drawing from which this engraving was made, was painted from the body of a patient who died in the Hôtel-Dieu, dropsical, in consequence of disease of the heart. He was forty-two years old. When you look at the engraving you will perceive that the left side of the cerebrum is diminutive compared with the right. It filled up, however, a larger space than it appears to do in the plate, for the lateral ventricle on that side was distended by a large quantity of serous fluid, which ran out when the ventricle was punctured; and then the surface of that side of the brain sunk down, and collapsed. Still the convolutions on that side, and all the dimensions, are remarkably less than on the other. The anterior lobe projected half an inch farther on the right than on the left side. The frontal bone, you will observe, is much thicker; twice as thick on the atrophied as on the natural side; and the frontal sinus very wide and open. The internal parts of the brain are all diminished in proportion. There was a large quantity of serous fluid filling and distending the subarachnoid cellular tissue. The nervous matter was whiter and harder on the atrophied side. One very curious thing is, that the *left* lobe of the *cerebellum* was the bigger of the two; but there was no such marked differences between them as between the two sides of the cerebrum.

Now the patient in whom this singular disproportion between the two sides of the brain was met with, had been incompletely hemiplegic, as long as he could recollect, on the right side; and the imperfectly palsied limbs were shrunk and withered, and the fingers of the hand contracted. Yet he had managed to walk about with the help of a stick; and there was nothing remarkable, one way or the other, in the state of his intellectual faculties.

The same condition has been seen on both sides of the brain: the organ itself existing in miniature as it were, and lying at the lower part of the vaulted cavity of the cranium; the intermediate space being filled up with serous fluid. In long-standing cases of this description you must not suppose that the nervous matter has been compressed into a smaller compass by the effused fluid; but that the fluid has been poured out to fill that part of the skull which is empty of brain, and which must be filled with something. This condition of the cerebrum is accompanied by idiotcy.

Acute hydrocephalus.—I proceed in the next place to the consideration of that disease to which the name of *acute hydrocephalus* has been given. It is the *apoplexia hydrocephalica* of Cullen, in whose time it was not looked upon as being of an inflammatory character. It is, in fact, *inflammation of the brain*, as it occurs in *children*, and especially in *scrofulous* children. The inflammatory symptoms are not always well marked; and yet they do, of all the symptoms, call for the most attention. That the essence of the disease consists in inflammation we have abundant evidence, both in the juvantia, and in the appearances presented by the brain after death.

I made some observations, in the last lecture, respecting the nomenclature of diseases, and said something in defence of the name delirium tremens. Now it must be confessed that the disease we are at present considering was unfortunately named, when it was called hydrocephalus. I repeat that it matters not at all what name we assign to a disease, provided that the denomination does not carry with it any erroneous notion in regard to the *nature* of the disease. I think hydrocephalus a bad name, because it reminds us of one circumstance only of the malady, viz. the serous effusion, which, so far from being the *cause*, is only a *frequent effect* of the disease. But hydrocephalus, or water in the head, is an appellation so established, both among ourselves and with the public, that I cannot venture to propose any change.

After what I have already stated in respect to inflammation of the brain in adults, you will be prepared to hear that acute hydrocephalus (for I shall take the liberty of restricting that term to the disease as it occurs in *children*)—I say you will not be surprised to learn that acute hydrocephalus furnishes a great variety of symptoms; and many variations in the mode of their coming on, and in their combination, and succession.

It is of the greatest importance to recognise acute hydrocephalus in its *earliest* stages; and even to look out for indications of its approach. I shall, therefore, describe those changes in the state of the young patient, which have been found to be, in many cases, premonitory that the disease was impending. But such symptoms are by no means always followed by acute hydrocephalus; nor is acute hydrocephalus always preceded by such symptoms. Still, when they do occur, they should put us upon our guard.

Precursory symptoms.—The *precursory symptoms* to which I allude consist chiefly in a morbid state of the nutritive functions. The child loses his appetite; or his appetite becomes capricious: he sometimes appears to dislike his food, and sometimes devours it voraciously: his tongue is foul, his breath offensive, his belly enlarges, and sometimes is tender; his bowels are torpid, and the evacuations from them unnatural; the stools are pale, and contain but little bile; or they are dark, with vitiated bile, fœtid, sour-smelling, slimy, or scybalous; and the child loses his former healthy aspect, becomes paler, and thinner. Even already there are some indications of derangement of the cerebral functions; the child is heavy, languid, and dejected; his customary spirit and activity are gone; he gets fretful and irritable, and is manifestly uneasy; and sometimes he shows a little unsteadiness and tottering in his gait.

In very young children, when the disorder is at hand or incipient, an unnatural wakefulness is often observable; a frequent sudden cry or scream, a clenching of the little fists, and a turning in of the thumb towards the palm of the hand, give warning also of the approaching malady.

Now when this sort of alteration is observed in a child who has any hereditary title to scrofula, or who bears the marks of the scrofulous *diathesis*, or is even a precocious and particularly clever child, and still more if he present any other indication of scrofulous *disease*, there will be much ground for apprehending that mischief is brewing within his head. I advert to these tokens of scrofula, because the inflammation, in a majority of cases, if not in all, is of a scrofulous character. But there is this peculiarity in it, which distinguishes it from scrofulous inflammation in most other parts, viz. that as it occurs in an organ of delicate structure, and one which is essential to life, its progress is more rapid, and it is more necessary to treat the disease vigorously.

It has been made a question whether the derangement of the digestive organs that has just been described is or is not the *cause* of the affection of the brain; or whether both the abdominal and cerebral disorder be not common and concurrent effects of the same cause. It is said that the stomach and bowels are more in the way of being acted upon by injurious influences than the brain, and that, therefore, the complaint may be supposed often to originate in their derangement; and great good, it is alleged, is done, the disease of the brain is often *prevented*, by remedying the disordered state of the stomach and bowels. On the other hand, it may be stated that a similar derangement of the digestive organs often comes on and lasts long in children, without leading to hydrocephalus; and hydrocephalus often attacks a child in whom no such symptoms of abdominal disease have appeared. We can never be certain, therefore, that hydrocephalus has been prevented, in any given case, by remedies addressed to the digestive organs. I cannot think the question is one of much practical importance: whether the disturbances of the nutritive functions *cause* the brain disease, or merely *indicate* it, they are equally valuable in directing our attention to the head.

In these little patients any source of irritation seems to act as an *exciting* cause: surgical operations, which are sometimes necessary at that tender age—falls or injuries of any kind—painful dentition.

Modes of attack.—There are, at least, three several ways in which this disease may make its attacks; and with these it is proper that you should be acquainted.

In the first place, it may come on *gradually*: after those symptoms which have already been spoken of as being premonitory. Probably this is the way in which it most frequently commences. After a period, of uncertain duration, in which the child has complained of occasional pains in the belly and head, and signs of derangement of the stomach and bowels have been present, the pain in the head begins to be more severe and to recur more frequently; it is not mere headache, but generally a sharp shooting pain, recurring at intervals; sometimes it affects one side of the head more than the other: the little patients wake and shriek out with the pain, and this in children is a very characteristic symptom; and as coma comes on this shrieking gives place to an habitual moaning, which is scarcely less characteristic. Very often in the beginning of the disease there is pain and stiffness at the back of the neck: sometimes there is much pain of the limbs in the early periods, and in some children extreme tenderness of the scalp, so that they cannot endure to have the head shaved. The pain of the head becomes complicated with vomiting, and both these symptoms are aggravated by motion. Very often nausea is excited by the erect posture, and the patient begs to lie down. The child sighs frequently, and looks grave or sad; his eyes are pained by a strong light, so that he knits his brows. The pulse becomes rapid, and the disturbance and irregularity in the abdominal functions increase. This stage of the complaint may last ten days or a fortnight, the child becoming daily more weak, and more peevish, and looking more and more ill.

In the second form of attack there are no premonitory symptoms; or they occur for a very short while only before the disease sets in suddenly and violently, with acute pain in the head and high fever; or with convulsion: the face is flushed, the eyes are brilliant; there is intolerance of light and of sound, and there are pain and tenderness of the abdomen. In short, the disease, when it commences in this manner, is very like an attack of continued fever. You may find these varieties described in Dr. Cheyne's excellent treatise on this disease. "We are led to suspect," he says, "some deeply-seated evil from the frantic screams and complaints of the head and belly, alternating with stupor, or rather lowness, and unwillingness to be roused; and we are struck with the great irritability of the stomach, which exists in a degree beyond what we generally find it in the fevers of this country; retching and vomiting being brought on by a change of posture, and certainly by every attempt to sit up in bed; and the disordered state of the bowels, which attends this irritability of the stomach, is also remarkable: and when at any time the child has a little respite from the violence of these symptoms, we find our suspicions confirmed by his looks; for when the features do not express pain or terror, there is not unfrequently a vacancy of look, the eyes being *set*, with an expression of dejection which is peculiar to certain diseases of the brain." The mode of attack which has now been described, although the most regular in its progress, is not so common as the first, nor as the third, which I have yet to mention. The *third* way in which the disease makes its advances is very insidious: the head symptoms supervene upon the subsidence of some other disorder: scarlet fever, small-pox, hooping-cough, or any inflammatory or febrile complaint, or even after painful dentition. In these cases the early symptoms are often but slightly marked, or do not take place at all; the occurrence of convulsions or paralysis affording the first evidence that the brain is implicated. This is the most dangerous form of hydrocephalus. It has received the appropriate title of *waterstroke*.

Stages of the disease.—In whatever way the disease makes its invasion, it is apt to be attended with many and variable symptoms; and different observers, with the view of facilitating the description of the disease, and of making it more intelligible and more easily remembered, have divided the symptoms into groups, and considered each group as characteristic of a particular *stage* of the malady. But they have not all done this in the same way. It may be of use, however, to inform you of the different classifications which have thus been proposed. Dr. Whytt, who was almost the first person in this country who wrote upon this disease (I believe Dr. Paisley, of Glasgow, was *the* first: you may see his paper in the third vol. of the Edin. Med. Essays), Dr. Whytt I say, whose description is an extremely good one, took the *pulse*—which undergoes very remarkable variations in the course of the disease—as the ground of his division. He makes three stages of it therefore; the first, in which the pulse is frequent; the second, in which it is slow and irregular; and, the third, in which it again becomes frequent and feeble. These successive fluctuations in the pulse are to be noticed in very many cases. Dr. Gölis, again, an eminent German writer on hydrocephalus, whose little work has been translated by the late Dr. Gooch, as being the best book on the subject that he was acquainted with, makes four stages, according to what he believes to be the condition of the *brain* in each. First, he has the period of *turgescence*, which corresponds with that period in which the premonitory symptoms occur; secondly, the period of *inflammation;* thirdly, the period of *effusion;* fourthly, the period of *palsy*. The two last would appear to be almost identically the same. Dr. Cheyne makes three stages; which he finds marked, not like Dr. Whytt, by the state of the circulation, but by the state of the nervous system. Thus he calls the first the period of *increased sensibility*, when every stimulus produces an impression more than proportioned to its common effects. In the second stage, that of *diminished* sensibility, the child is not easily roused, his pupil is dilated, and his pulse slow; he is lethargic, with obstinately costive bowels. The third stage with him is that of palsy and convulsions, in which there is squinting, rolling of the head, stupor, convulsions, with a rapid thready pulse.

Cases often occur, however, that baffle all these attempts at classification. Convulsions, instead of being among the *last*, are not seldom among the very *first* symptoms. The pulse is sometimes remarkably *slow* at the *outset*; sometimes *frequent through the whole disease*; and sometimes *perfectly natural*.

I do not make these statements to magnify the difficulty of distinguishing the disease; for the diagnosis is really not so difficult as it has sometimes been represented; but to shew you that you cannot trust to any succession of symptoms, still less to any one symptom, as being pathognomonic of the disease.

The symptoms that occur during the first stage are very variable, as you may suppose from what I have said of the different modes in which the disease is apt to set in. Those that are most constant are, pain of the head, severe shooting pain I say it seems to be, for the child puts its hand there, and cries out frequently "Oh! my head;" restlessness; inability to sit up; very disturbed sleep, with grinding of the teeth, and from this sleep the child often starts apparently in terror, and with a scream. The head is hot externally; the little patient is annoyed by light, or noise; the pupils are contracted most commonly during this stage; the child is unwilling to be disturbed, and, therefore, does not reply readily to questions; but the replies, when made, are correct and rational. This stage is marked also by vomiting, a total loss of appetite, a white tongue, offensive breath, costive bowels, unnatural stools, green often, or black, like tar, scanty and high-coloured urine. Dr. Gölis says that the abdomen, which has been tumid and tender perhaps, sinks down and becomes flat, without any increased excretion by stool; and that this is a very characteristic symptom. The pulse in this stage is frequent and sharp. In short, the symptoms are such (in general) as indicate very plainly that inflammatory action is going on within the head. Now the symptoms that characterize this first stage of the complaint sometimes rapidly pass into those which belong to the second. They may not be present for more than a few hours; or they may last a day or two, or several days; it is very seldom, I believe, that they continue longer than a week. The period answers, in the general character of the symptoms, to the period of *excitement* in encephalitis, which, in truth, is very much the same disease, modified by its occurrence in the adult subject.

So also the *second stage* of acute hydrocephalus corresponds, in its general features, with the period of *collapse* in encephalitis. The pulse becomes irregular, extremely variable and fluctuating, and often *slow*; it is easily accelerated, however, by the smallest exertion—by taking the child out of bed, or even raising him into a sitting posture. With this slowness of the pulse comes on a diminution of sensibility, and general heaviness and stupor; the pupils dilate, the light is no longer troublesome, the vision is imperfect, often it is doubtful whether the child sees at all. If the eye be closely examined and watched, the degree of light remaining the same, the size of the pupil will frequently be seen to fluctuate, or oscillate, till at last it is wide open and immoveable; while this goes on, squinting takes place, and double vision when the child can yet see any thing. One or both eyes are turned in, or more rarely outwards. Noises do not now disturb or irritate the child—who lies on his back, with the eyes half closed, in a state of drowsiness or stupor, which is occasionally interrupted by some cry or exclamation expressive of pain. Convulsions frequently occur, but not uniformly; slight and partial spasmodic twitchings; or general and long-continued convulsions; paralysis; sometimes hemiplegia. The urine and stools are passed unconsciously. Sometimes the child, with feeble and tremulous hands, is incessantly picking his lips, or boring his fingers into his ears or nostrils.

This stage may last a week or two. And what is remarkable, it is often attended with remissions, sometimes sudden and sometimes gradual — deceitful appearances of amendment, and even of convalescence. The child regains the use of its senses; recognizes those about him again; appears to its anxious parents to be recovering;—but in a day or two it relapses into a state of deeper coma than before. And these fallacious symptoms of improvement may occur more than once.

The third stage does not differ materially in the character of the symptoms that accompany it, from the second, except that the pulse again becomes frequent, nay, uncommonly rapid; beating sometimes 200 strokes in the minute, so that you can scarcely count it. Dr. Whytt, in one instance, counted more than 210 pulsations. The child rolls its head perpetually from side to side; moans continually; waves its hands in the air, or one hand, the other frequently being palsied; sometimes there is paralysis of one side, and convulsive twitchings of the other. The circulation is very unequal; one part of the body will be found hot and dry, and another covered with a cold sweat; the cheeks are alternately pale and flushed; the child is raving, or insensible; the rapid pulse gets more and more weak; and at length the patient expires. In many instances death takes place in the midst of a strong convulsion. This last period is of very uncertain duration; it may be over in a few hours, or it may last a fortnight.

For my own part, I conceive that for all practical purposes it would be quite enough to make two stages only of this disease. In the first, the symptoms are those of active inflammation of the parts within the cranium, or of some of those parts; in the second, we have the symptoms that result from the consequences and products of the inflammation, from softening, and from the effusion of serum. And frequently these sets of symptoms are, in some respects, common to both these causes, and more frequently still they are mixed up together; effusion taking place, yet the inflammation going on. And we may understand how the whole collection of symptoms may vary and fluctuate, and assume an uncertain character, according as the inflammatory process has ceased, or is still in progress, according as it exists alone, or is mingled with the further source of cerebral disturbance that is furnished by its own events; and according as the inflammation may have come to an end, while its events remain behind, and declare their presence by appropriate signs in proportion to their place, and extent, and their various kinds and combinations.

Anatomical characters.—What are these events? In other words, what are the morbid appearances presented after death in acute hydrocephalus?

In some cases we find traces of inflammation of the membranes of the brain; a firm adhesion of the skull-cap to the dura mater; occasionally some adhesion of the opposite surfaces of the arachnoid membrane to each other. Very commonly there is an effusion of serous fluid beneath the arachnoid, in the meshes of the pia mater, and especially in the depressions between the convolutions. You would suppose, upon looking at this collected fluid through the arachnoid, that it had the consistence of jelly, but it is not so; if you divide the arachnoid, by means of a sharp scalpel, a perfectly limpid fluid makes its escape. Not unfrequently there are layers of coagulable lymph interposed between the arachnoid and pia mater: this is a most unequivocal evidence of foregone inflammation; and it is more frequently met with in the strongly marked cases. When portions of the cerebral mass are removed by slicing it, a great number of red points are often observed, speckling its cut surface: I mention this appearance just to say, that, to the best of my belief, it does not warrant any conclusion in respect to the state of the brain before death. We find these red spots numerous in many cases, when there had been no cerebral affection manifested during life; and they are not always to be seen when we are certain that there has been inflammation. With respect to the nervous matter itself, it is said to be sometimes softer than natural, and occasionally it has been found infiltrated, as it were, with serous fluid, *wet*, and *so* rendered soft. Gölis describes an instance of this kind, in which, he says, the fluid could be expressed from the cerebral substance as from a sponge.

But the most common and characteristic change is *softening of the central parts of the brain, with an effusion of serous fluid into the ventricles.* Generally the effused fluid is thin and watery; serosity rather than serum. It contains less animal matter, perhaps, than any other animal production. Dr. Bostock found that of 100 parts, 98·6 consisted of water, 1 part of salt, and ·4 only of animal matter. It is not, therefore, in common, coagulable by heat. The quantity effused is uncertain; speaking generally, it varies from two to six ounces.

But the effused fluid is not always clear and limpid; sometimes it is turbid, like whey, or even puriform, with flocculent shreds floating in it. These have been considered as flakes of coagulable lymph; but I question whether, in many cases, they are not merely fragments of the softened and broken down materials in the neighbourhood; for the septum lucidum, the fornix, and other parts forming the walls of the ventricles, are very commonly found softened, and pulpy, or entirely disorganized. The septum lucidum is perforated perhaps by a ragged irregular opening, the softened portion having fallen out: the fornix has lost its consistence, and often its figure, or falls asunder when the most gentle attempt is made to raise it. Dr. Abercrombie holds not only that this softness is the result of inflammation, which I think cannot reasonably be doubted, but that the inflammation of these central white parts constitutes the essence of the disease, in very many cases of acute hydrocephalus; and what bears him out in this opinion is the interesting fact, that this softened condition of the septum lucidum, fornix, and corpus callosum, may be fatal without any effusion of serum, and without any other morbid appearance, although with all the symptoms which are usually considered to indicate acute hydrocephalus. He relates two striking examples of this kind; one of them was as follows :—A woman became affected with violent pain in her head, shooting from temple to temple. She was extremely restless, tossing from one side of the bed to the other; her eyes were slightly suffused, and impatient of the light; pupils contracted; the pulse 60, soft and rather weak. She was repeatedly bled, both generally and topically, and used purgatives, cold applications to the head, blistering, &c. For three days she was much relieved by these measures; the violent pain was removed, and she complained of pain only when she moved her head. She was quite sensible, but oppressed, and inclined to lie without being disturbed. At the end of four days her speech became affected, of which she was aware, for she said she felt a difficulty in getting out her words. Then came stupor, and at times incoherence, and double vision, and at last coma, and dilated pupil. She died on the eighth or ninth day of the disease.

The fornix and septum lucidum were found broken down into a soft white pulpy mass: there was no effusion in the ventricles, and no other disease in any part of the brain.

Not unfrequently scrofulous tubercles are discovered in the substance of the brain; and it is probable that these would have been *more* frequently met with, if they had always been carefully looked for. They consist almost universally of a cheesy kind of matter, like that of tubercles in the lungs.

You will find a good deal said by writers on this disease, of morbid appearances found in other parts besides the brain, and especially in the abdominal organs,—enlargement of the liver, inflammation of its peritoneal covering, a preternatural development of Peyer's glands, tuberculous matter in the glands of the mesentery. One remarkable change is very often seen, viz. intussusception of the small intestines. This probably takes place a short time only before death, and appears to be the result of spasmodic or irregular motions of the bowels, analogous to those which are observed in the voluntary muscles. The intussuscepted portions are easily pulled out, and shew no marks of inflammation.

Pathology and causes of the disease.—There have been endless discussions respecting the true pathology of acute hydrocephalus, and it may be proper that I should offer you a few remarks upon this point, before I proceed to the treatment of the disease.

I need not, I conceive, take any farther pains to convince you that the disease is essentially inflammatory. We are inevitably led to that conclusion by the *symptoms*, which nearly resemble those that occur when undoubted inflammation has arisen from injuries of the head: by the *appearances on dissection*, which are *always* such as inflammation may have produced, as softening and effusion of serum; and *frequently* such as nothing but inflammation could have produced, as suppuration, and the formation of adventitious membranes; and lastly, by the unequivocal relief given (as we shall see) by blood-letting, and other evacuations, the blood drawn being sometimes also sizy.

Now many persons, as I have already hinted, lay great stress, when discussing the pathology of acute hydrocephalus, upon the previous unhealthy state of the nutritive apparatus. They hold that the primary disease—the *fons et origo mali*—lies in the stomach, or bowels, or liver; and that the brain affection is secondary, and caused by sympathy with these distant parts: and this opinion they fortify by referring to the frequency of organic disease, met with after death, in the abdominal viscera. In accordance with these views of its origin, they propose to cure, or to prevent, hydrocephalus, by redressing the faulty condition of the digestive organs.

Now this, in my judgment, is not only an erroneous, but an unsafe doctrine: for it tends to divert our attention from the head, and to suggest a feeble and inadequate plan of treatment. The grand predisposing cause of acute hydrocephalus is certainly the scrofulous diathesis, and this is why we see the complaint run so often in families; so that one child having died of that disorder affords much ground for apprehending that others, belonging to the same family, will become victims to it. The constitutional tendency is hereditary, and children born with it are liable and likely to have strumous disease set up in various organs at once, or perhaps in succession; not, however, a succession of cause and effect, but of common relation to one pervading disposition. We need not be surprised that scrofulous inflammation should affect the brain and abdomen at the same time. When we find obvious organic disease of the brain, scrofulous tubercles for instance, which must have been antecedent to the hydrocephalus, it would be just as absurd to look to the abdomen for the cause of the hydrocephalus, as it would be to seek in the brain for an explanation of the cause of diarrhœa or dysentery, when the liver or colon were known to be diseased.

I do not mean to assert that the morbid conditions of the brain and of the abdomen are perfectly independent each of the other. The vomiting that is so constant a feature of acute hydrocephalus, the constipation that is so common a consequence of head affections, afford familiar evidence of the influence which cerebral disorders may exercise upon the abdominal functions. Conversely, any disease in other parts of the body may react injuriously upon the brain, and may sometimes be regarded as an exciting cause of disease in that organ.

The period of life is also a strong predisposing circumstance; acute hydrocephalus being very much more frequent during infancy and childhood than at any subsequent time. It is said that fifty children are attacked by it in the first five months of life, for one child that has it afterwards. But it may occur at any age up to the twelfth or fourteenth year. After that period it is comparatively rare.

Whatever tends to deepen and aggravate the scrofulous *diathesis* — improper or insufficient nutriment, exposure to cold, inadequate clothing, impure air — may be regarded as a *predisposing* cause of acute hydrocephalus. And whatever tends to call scrofulous *disease* into action, may be reckoned among the possible *exciting* causes of acute hydrocephalus. Any general irritation may bring it on. It sometimes supervenes upon the drying up or repression of eruptions, as tinea capitis, or sores behind the ears. Such eruptions, therefore, occurring in strumous children, we must not attempt to cure suddenly; and free purging should be employed when they begin to disappear. The irritation produced by difficult and painful dentition is a very frequent exciting cause; and this is a source of danger which, in many cases, may be obviated by timely and judicious management. Violent heating exercise has sometimes, apparently, kindled the cerebral inflammation. Among the exciting causes we may place all physical injuries which jar and stun the brain; blows on the head, falls from a height, although the head may not be the part struck; and all moral agencies which shock or strongly disturb the nervous system; severe bodily pain, violent fits of anger, sudden fright. Gölis goes even so far as to say that great terror and distress of mind *in the mother* during the latter months of pregnancy may lead to the occurrence of acute hydrocephalus in the child, and he brings forward this curious fact in support of his opinion:—A large proportion of the children that were born in Vienna soon after the bombardment of that place by the French, in 1809, were seized with convulsions within a month after their birth, and died of inflammation within the cranium; effusion of coagulable lymph between the membranes, and of serum in the ventricles, being discovered on dissection.

CLINICAL LECTURES,

By Dr. Corrigan,

Delivered at the Hardwicke Fever and Whitworth Hospital, Dublin,

At the Commencement of Session, 1840-41.

Lecture II.

Manner of using the stethoscope.—Division of sounds into two classes.— 1st. Class, Simple sounds or murmurs; 1. Healthy vesicular murmur; 2. Puerile vesicular murmur; 3. Sonorous and sibilous murmur; 4. Tracheal (bronchial and cavernous) murmur. — 2d. Class, Compound sounds or rattles: 1. Crepitating rattle; 2. Mucous rattle. — Pectoriloquy and Bronchophony. — Ægophony, how produced.—Metallic resonance, &c.

I believe a knowledge of auscultation can be rendered much more simple and easy of acquirement than it is generally supposed to be. I cannot, perhaps, better expend the time of a lecture in this early part of a session, than in devoting it to laying down such rules as will, I hope, render the study of auscultation simple, and the attainment of a knowledge of it comparatively easy. By bringing the subject before you at this early part of the session, you will have ample time for testing, by practice, the rules which I would lay down for guidance in acquiring a knowledge of auscultation, and the correctness of the classification I propose to adopt.

Auscultation is called mediate when a stethoscope is employed, and an erroneous opinion is, perhaps, even rather generally entertained, that a stethoscope is employed to magnify sound. A stethoscope has no such power; it conducts sound, but does nothing more. It is, as a solid substance, a better conductor of sound than the air which intervenes between the ear of the physician and the parietes of a patient's chest, and it is, therefore, used as a better medium for conveyance of sound to his ear. The naked ear, where it can be used, or immediate auscultation, as its employment thus is called, will give the sound often better and more distinct; but the side of the head cannot, in many instances, and for obvious reasons, be directly or immediately applied to the chest; and, in some instances, it is necessary to define exactly the extent of some particular sound, which the small size of the cup of the stethoscope enables us to do, and which we could not do, where we have the side of the head, as in immediate auscultation, applied over a large extent of surface of the parietes of the chest. For those reasons it is frequently desirable to use the stethoscope, or mediate auscultation, in preference to the naked ear, or immediate auscultation. Previously to proceeding with our subject, there is one caution I wish to impress on you in using the stethoscope: it is, to be careful to keep the extremity of the stethoscope in close apposition with the surface on which it is applied. I have seen this so commonly neglected, that I know the caution is called for. Nothing is more usual than to see a person who is most anxiously endeavouring to learn auscultation, foiled in all his endeavours by want of attention to this apparently trivial circumstance. He applies the stethoscope accurately at first, but the moment his eye is off it, in bending his head to it, he unconsciously inclines the stethoscope to meet his ear, instead of keeping it fixed in its position; and the result is, that more or less of the trumpet end of the stethoscope is raised from contact with the surface—the stethoscope touches with only a portion of its rim, and it then ceases to convey any sound. To avoid this, apply the stethoscope accurately, so that every portion of its rim shall be in contact with the surface; and then, preserving it so, bring the ear to the cap of the stethoscope, taking care that it is not altered in the least from its original position.

There is, in the outset of a beginner's attempts to learn auscultation, a difficulty in his way, arising from a slight carelessness of expression in the work of Laennec, and which has been copied in most of the compilations formed out of it. Laennec says, speaking of healthy respiratory murmur, "On entend, pendant l'inspiration et l'expiration, un murmure léger," &c. In this there is an error. The healthy respiratory vesicular respiration is *only* heard during *inspiration*, or the sound during expiration is so very feeble that it may be considered as absent. Whenever a sound is heard, during expiration, of even very moderate degree of loudness, unless at the root of the lung, or very close to the trachea, there is always disease. Had Beau paid attention to this fact, he would not, I think, have originated his theory, that the respiratory murmur heard through the chest is the sound, not of the current of air passing into the air-vesicles, but is merely the propagation of the sound generated by the passage of the air along the nasal passage and pharynx and trachea. Were his opinion correct, the respiratory murmur should, throughout the chest, present the same character which belongs to it in those passages, of being heard equally loud in inspiration and expiration; but as it differs in the remarkable character of being audible only during inspiration, this difference of character is, I think, a conclusive objection against Beau's theory.

Our facility of becoming acquainted with the sounds of respiration will be greatly increased, if we keep always in mind a classification that almost of itself suggests itself; a division of the sounds heard on auscultation into two classes—

1. Simple sounds, or murmurs.
2. Compound sounds, or rattles.

There is no ear, however unformed, that is not able to distinguish between these two classes; there is no one who cannot, even when he hears a sound for the first time, no matter how strange it may be to his ear, at once say whether the sound is one produced by the simple blowing of air, "a simple sound or murmur," or whether it is one generated by the admixture of air and liquid together, "a compound sound or rattle." All the sounds heard in the chest belong to one or other of those two kinds; and if, when you hear a sound of the exact nature of which you may be in doubt, you will first refer it to its class, your labour in determining what it is will be very much diminished. A want of attention to this simple classification, in mixing up together confusedly all sounds under the one head of râles, and a mistranslation of the French word "râle," has added very unnecessarily to the auscultator's difficulties.

We shall commence with our first class;

Simple sounds or murmurs.—These are the sounds to the production of which a current of air alone is necessary. Their character is easily recognised even by the most untaught ear. The first of this class is the healthy vesicular murmur. There is no need of describing it. It possesses the character of being synchronous with the act of inspiration, and it ceases to be audible during the act of expiration. If the act of inspiration be performed with greater rapidity than natural, so that the velocity of the air traversing the smaller tubes is considerably increased, the sound becomes in proportion louder; and, when this loudness is remarkable, the sound heard is "puerile respiration," or puerile vesicular murmur. The respiration is naturally quicker in children than in adults, and hence the sound is louder. This loud respiration is the natural respiration of the child or infant, and hence its name. When a considerable portion of a lung in an adult is prevented by effusion into the pleura, by deposition of tubercle, by the obstruction of aneurism, pressure upwards of a large liver, &c. from performing its share of duty, there is extra work thrown upon the remaining lung.

To enable it to do the extra duty, the respirations are increased in frequency from

15 to perhaps 40 in the minute; and, in proportion to the frequency, is the loudness of the sound, or, in other words, the degree or intensity of puerile respiration. This explains to us why puerile respiration is an indication not to be overlooked. It tells us that the respirations are more rapid, and the vesicles in more energetic action, than natural; and we immediately, therefore, on hearing it, turn our attention to discover the cause. It tells us, you will remember, nothing of the nature of the cause which has given rise to it. Respiration may be puerile, even though the absolute number of respirations in the minute is not increased, provided each act of inspiration occupies a very short space, or is a rapid act. When a chest is narrow, or deficient in development, in proportion, compared with the rest of the body, the respirations make up in rapidity and frequency what the lungs want in capacity. The respiration in such individuals is naturally puerile. Individuals with such chests are more disposed to phthisis than others. Our third species is "sonorous and sibilous (or wheezing) murmur." This sound is identical with the "râle sonore," and "râle sibilant," of Laennec. The sonorous and sibilous murmur only differ from one another in tone. When the sound is produced in the larger bronchial tubes, it is the deep-toned or sonorous sound; when it is produced in the smaller tubes it is the high-toned wheezing, or sibilous murmur. The stages of a case of croup give us the progress of this sound, from its deep low tone up to the high whistling or sibilous note. In the commencement of croup, before the narrowing of the larynx is very considerable, the sound of the air passing in and out gives a low-toned rough sonorous note; as the orifice of the larynx, by the progress of the disease, becomes narrower and narrower, the sound becomes sharper and sharper, until at last it becomes a heightened, acute, whistling, or sibilous sound. If similar changes occur in the bronchial tubes within the thorax, similar results follow. When the larger bronchial tubes are narrowed either by deposition of viscid mucus within them, or by a tumor pressing from without, the sonorous or low-toned murmur is heard; when the smaller tubes are similarly affected, the sibilous or high note is heard. When those sounds are generated in the larynx, we hear them with the naked ear, because there is nothing intervening between the larynx and the ear to mask or intercept the sound, but, when generated within the chest, the tissue of the lung is so bad a conductor of the sound that it conveys it but feebly to the parietes of the chest; and then, in order to hear it, it becomes necessary to interpose the stethoscope as a connecting medium between the parietes of the chest and the ear. The mode of production of sonorous murmur was very satisfactorily shewn in a case of aneurism some time since under my observation. The tumor rising from the arch of the aorta pressed on the lower part of the trachea. Over the first bone of the sternum, and extending from this a little on each side, there was very loud sonorous murmur, but, as the stethoscope was moved away from this point to any other part of the chest, the sound became less and less loud. There is one form of disease, emphysema, in which sibilous murmur presents a character so remarkable that it may be considered diagnostic of the disease. The character is this—that the sound, the sibilous murmur, continues after all external respiratory effort or motion has ceased. In other diseases, a sound, whatever it may be, is coincident with either the act of inspiration or expiration, or both, but there is no sound when the chest is at rest.

Emphysema presents this remarkable character particularly, when at all aggravated by the supervention of even trifling bronchitis—that, when the chest is quite at rest, there is still heard a clear, and occasionally even a very loud, sibilous murmur; indicating that there is air still in motion within. I believe the mode in which this singular phenomenon is produced is this: that a number of the air-cells, which are greatly dilated, are distended with air in the act of inspiration; that, from their narrow necks, they cannot be emptied so rapidly in the act of expiration as the natural-sized cells in their neighbourhood, and that hence, after the naturalized cells are quite emptied, the distended and enlarged air bullæ continue to pour out through their narrow orifices the compressed air into the surrounding cells, and the air, in its passage into neighbouring tubes or air-cells, produces that clear sibilous murmur, or musical wheezing, which is so frequently heard within an emphysematous chest after the termination of each act of expiration. In some of these instances the sounds are as varied and as musical as those of a harmonicon.

Tracheal, bronchial, and cavernous murmur.—I include all these under the one head; I have a good authority for doing so. Laennec says (vol. i. p. 55), "under the name of bronchial respiratory murmur, I designate the sound of inspiration and expiration in the larynx, trachea, and larger bronchial tubes;" and a little farther on (p. 558), speaking of the most marked form of cavernous respiration, he describes it as "only a more palpable tracheal or cavernous respiration, heard in cavities and in large bronchial tubes, when the pulmonary tissue around them is indurated." I know you will be told by some that it is easy to distinguish bronchial from cavernous murmur. I do not think it is, when there is considerable induration round a large bronchial tube; and we have evidence to the same effect in those passages I have just quoted from Laennec. You can always make your ear familiar with this sound; it exists always naturally in the trachea, and hence you can at all times study it. Its remarkable feature is, that it is equally loud in the act of expiration as of inspiration.

A large bronchial tube may be considered as a continuation of the trachea, and hence it is not to be wondered at that we should often in disease hear the same sound from it; but it will naturally be asked here,—since form, and shape, and construction of the larger bronchial tube, are so identical with the trachea,—why we do not hear a similar sound at all times from a large bronchial tube. It is because, intervening between the bronchial tubes and the ear of the auscultator, there is in health the tissue of the lung, the worst conductor of sound that it is possible to conceive; as badly calculated to conduct weak sound as a mass of loose wool. The sound is heard with facility from the trachea, because the stethoscope can be applied directly on the trachea itself; but it cannot be heard from a bronchial tube, because the tissue of the lung intervenes to mask or smother the sound; but let a portion of lung around a bronchial tube become solidified, it then becomes a good conductor of sound; the sound of the air passing to and fro along the bronchial tube is then conveyed to the ear as distinctly as the sound heard in the trachea. Thus it is that when bronchial murmur is heard, it tells us that instead of the healthy loose vesicular texture of the lung, there is now interposed some solid structure which conveys the murmur of bronchial respiration to the ear, and thus bronchial respiration becomes a sign of solidification of the lung, from tubercle, from pneumonia, or of the existence of an intrathoracic tumor. The sound of cavernous respiration is very like that of bronchial respiration: it is the same character of sound, more intense, but so like it that it requires a very practised ear to distinguish between the strongest degree of bronchial or tracheal respiration, and cavernous respirations. Indeed, the tracheal respiratory murmur has all the most marked distinguishing characters of cavernous respiration. The mass of air acting on the sides of a cavity acts as the mass of air acts on the sides of the trachea, or of a large bronchus, and as the acting cause of the sounds is similar, it is only reasonable to expect the sounds themselves to be similar. We have other means, however, of distinguishing between bronchial and cavernous respiration. The latter will most often be accompanied with gargouillement on coughing, or with signs drawn from percussion, or even from the history of the case, that will enable us to distinguish between a cavity and a solidified lung surrounding a bronchial tube. Laennec has said it would be of great consequence to be able always to distinguish bronchial from vesicular respiration (vide vol. i. p. 87); but he gives no precise mode of distinguishing them. The following simple rule, which I have for some years been in the habit of laying down, will be always sufficient for this purpose:—vesicular murmur, even when puerile, is only audible during *the act of inspiration;* bronchial respiration is audible both during *inspiration and expiration*, and equally loud during each of those acts. This terminates our class of simple sounds or murmurs; and let us now sum up:—

1. Healthy vesicular murmur.
2. Puerile vesicular murmur.
3. Sonorous and sibilous murmur.
4. Tracheal (cavernous and bronchial) murmur.

Compound sounds or rattles.—We shall now pass on to our second class, or rattles properly so called. This class is most easily distinguished from the preceding. All the sounds belonging to this class are produced by the admixture of air and liquid, of some kind, in the air tubes or vesicles; and the character of a sound thus produced is easily detected by any ear, even though the hearer may not at first be able to say what the precise sound is. If a sound be heard within the chest which gives to the ear the impression of air and liquid mingling together, it must belong to this class; and there are only two sounds in this class, the "crepitating rattle" and the "mucous rattle."

1st. *Crepitating rattle.*—Various similes have been made to enable the young auscultator to recognise this sound. It has been compared to salt crackling on the fire, to the noise made by rolling a lock of the hair of the head between the finger and thumb, &c. These are bad similes, for this reason—that they lead you away from the manner of production of the sound. The sound is exactly that of small bubbles breaking through fluid, and it is thus produced in the diseases in which the sound is heard—in pneumonia, and in œdema of the lung. In those diseases the vesicles of the lung are occupied by a serous exudation, and the air, broken by the minute branches of the bronchia into very small bubbles, makes, by breaking through this serous fluid, the crepitating rattle. You can very easily generate it; half fill a common phial with water, and add to the water a few drops of mucilage, so as to give it very slight viscidity, then shake the bottle, and while the bubbles are still breaking in numbers on the surface, hold the mouth of the phial to the ear, and there is a very distinct crepitating rattle heard, which continues as long as the bubbles continue breaking through the fluid. If too much mucilage be added, the passage of the bubbles is so slow, or they are so large, that the sound is not generated in perfection. [The experiment was shewn.] I am indebted to Spittal's work on Auscultation for the hint as to this mode of generating the sound. You can thus at pleasure make and study the sound, to render your ear familiar with it. There is a sub-genus of this sound made by Laennec, and of course adopted by all his compilers, called subcrepitating rattle, and described as characteristic of, and produced by, œdema. I do not believe there is any such subdivision available in practice, or recognisable by the ear. Laennec himself says (vol. i. p. 341), "We must confess that it is sometimes difficult to distinguish those two affections, œdema and pneumonia, from one another, by the stethoscope." If we recollect that in œdema equally as in pneumonia there is a serous exudation into the air-cells, and that the sound in both diseases is produced by the mingling of minute air-bubbles and fluid, we must, I think, admit that the sounds must be the same. Subcrepitating rattle may, then, be excluded altogether.

I have a similar observation to make of *dry crepitating rattle*. I do not believe this sound exists at all. I have sought for it over and over again, and never yet have been able to meet with it. Laennec has stated that it belongs to emphysema. Now of all diseases that are common in this country, emphysema of the lungs is one of the commonest. I do not think in the winter season you can go into a ward in any hospital in Dublin without seeing one or more cases of it; and if dry crepitating rattle belonged to it, I think we could hardly fail of recognizing it sometime or other. Laennec has compared it to the sound produced by the crackling of a dry bladder, leaving it to be inferred that the sound is produced by a similar crackling of the emphysematous lung; but a lung, no matter how emphysematous, can never be dry in the cavity of the chest, and when we feel a lung that is very emphysematous, one of its most remarkable characters is that it feels like soft wool, much more destitute of any crackling feel than a healthy lung. Laennec gives no satisfactory proof of having heard it; of emphysema he gives four cases.

No. 1. Not examined at all by the stethoscope.

No 2. Case was followed up to death, and signs noticed; viz. absence of respiratory murmur, clearness on percussion, and râle sibilant. There is no observation of dry crepitating rattle among the signs. The post-mortem shewed extensive pulmonary emphysema.

No. 3. The signs are also given in detail, but again no dry crepitating rattle noted; yet post-mortem, as before, revealed very extensive pulmonary emphysema.

No. 4 gave the same result.

Laennec has stated that dry crepitating rattle is more characteristic of interlobular emphysema than of the pulmonary form. He however admits (page 33) that he never had an opportunity of seeing any one die with this affection. I have had several opportunities of examining the chest for this sign, in persons who got interlobular emphysema from fractured rib, and I have never been able to detect the sound. October 14th, a man died in Jervis-Street Hospital, with subcutaneous emphysema of the whole body, the result of fractured ribs. I examined his chest very often and very carefully for dry crepitating rattle, but could never discern it; yet, on post-mortem examination, there was both pulmonary and interlobular emphysema to such an extent that the lung did not collapse; and it looked, on the chest being laid open, as if composed of flocculi of white wool. The patient had been for years asthmatic. There was very sharp crepitating rattle in the subcutaneous tissue when it was pressed upon, but none in the chest.

There are only two cases given by Laennec in which he says he heard the sound; but as there was also acute catarrh in those cases, and there was no post-mortem in either, no stress can be laid on them. I believe that the sound heard in emphysema of the lung, when of a crackling character, is merely a variety of mucous rattle produced by the catarrh which so often aggravates emphysema; and that, in the multiplicity of his observations, Laennec, led away by a theoretical notion of the crackling of an emphysematous lung, described it as a dry rattle. I think this opinion is greatly strengthened by the observation of a case of emphysema. If examined just when an exacerbation or asthmatic attack is coming on, there are heard all varieties of wheezing or sibilous murmurs through the tubes, arising from their narrowing, caused by congestion of the mucous lining of those tubes at this early stage, but no crepitating rattle. But as the attack [illegible] in expectoration, the [illegible] murmurs become mingled with rattles, which are, however, not dry, but moist or mucous rattles. I think the conclusion we may safely arrive at is, that there is really no such sound within the chest as dry crepitating rattle.

2d. *Mucous rattle.*—This sound is always most easily recognised. We have all heard what is popularly called the death-rattle in a dying person. When a quantity of mucus, pus, or blood, in the trachea, is churned up in the act of respiration with the air passing through the trachea, the mucous rattle in this situation, and thus generated, is easily heard by the ear, without approaching it even closely to the trachea. If the same rattling of any one of those fluids and air is taking place lower down, in the first, second, third, or fourth-rate bronchial tubes, there is the same sound produced; but it is necessary to bring the ear either directly, or through the medium of the stethoscope, to the parietes of the chest, to hear it. The sound is easily recognised as produced by the admixture of air in large bubbles with some liquid; and as the bubbles can only be large in either good-sized bronchial tubes or in a cavity, when heard it always indicates either effusion into the larger tubes, or, when the bubbles are remarkably large, and the rattling confined to a particular locality, it indicates that there is a mass of liquid collected into one spot, and then the sound is called gargouillement. Gargouillement is only an extreme degree of mucous rattle, circumscribed in its extent.

We have now gone through the two classes of sounds, and divided into two classes they will now stand thus:—

1*st Class.*—Simple sounds or murmurs will contain—

1. Healthy vesicular murmur.
2. Puerile vesicular murmur.
3. Sonorous and sibilous murmur.
4. Tracheal (cavernous and bronchial) murmur.

2*d Class.*—Compound sounds or rattles:—

1. Crepitating.
2. Mucous.

These are all the divisions that are necessary for any purpose. It is easy, when a sound is heard, to at once say, from its nature, to which of these classes it belongs, and this being ascertained, it is not difficult to determine which of the sounds it may be. The voice, heard through the medium of the stethoscope, presents some alterations of consequence to be acquainted with. If the stethoscope be applied over the larynx or trachea in any individual, and that individual speak, the voice will come so sharply through the stethoscope, that the hearer would fancy the person was speaking to him through the tube of the stethoscope. The same resonance extends along the bronchial tubes into the chest, but is lost, in ordinary circumstances, by the loose tissue of the lung intervening between each moderately-sized bronchial tube, and the walls of the chest; but if the tissue of the lung be rendered solid by pneumonia or tubercular deposition, then the sound is readily conveyed from the bronchial tube, and the voice is heard from within the chest nearly as distinctly as when the stethoscope had been placed over the larynx or trachea. To the voice thus heard from within the chest, the name of bronchophony or pectoriloquy is given. They are but different degrees of the same sound. If there be a cavity, the multiplication of the sound within it gives a sound exactly analogous to that heard from the trachea; or if there be a good conducting medium between any large bronchial tube and the surface, the voice is heard from it with the same clearness. In a case of aneurism, pressing on the right side of the trachea, related by Drs. Graves and Stokes, in the Dublin Journal, 1834, it is noted that "well-marked pectoriloquy may be heard on applying the stethoscope to the anterior portion of the tumor." And, in Laennec, vol. i. p. 65, it is observed that "in thin subjects, particularly children, there is, at the superior internal angle of the scapula, a bronchophony in intensity equal to pectoriloquy."

These observations all prove that there is no difference in kind between bronchophony and pectoriloquy. The difference is only in degree. The sound is only deserving of the name of pectoriloquy when it comes so sharp into the ear as to obliterate altogether the natural voice of the patient; but there are all shades of this, from very slight resonance up to this intensity.

There is a singular form of bronchophony heard in some cases of pleuritic effusion, to which the name of ægophony is given from, the singular bleating resonance, resembling that of a goat, which accompanies it. This preparation will help us to explain the mode of its production. [A preparation of the trachea and bronchial tubes, the tissue of the lung having been removed, was exhibited.] This preparation shows us a large branch of bronchial tubes going to the large lower lobes of the lung on each side. When effusion takes place into the cavity of the pleura, the lower lobes are pressed upwards; this brush of bronchial tubes is also pressed upwards; the tubes are also pressed close together, and then there is a bundle of bronchial tubes lying close together in the angle of the ribs, and a little below the scapula. If over this place the stethoscope be applied and the patient speak, the whole bundle of tubes vibrates together, and there is a corresponding increase of resonance given to the voice, from which it derives its name of ægophony. If the effusion be very great in amount, the sound is lost, for then the sides of the tubes are pressed together, and the lung is forced away from the angle of the ribs. If the effusion be not sufficient in amount, the sound is not heard, for then the bronchial tubes are not pressed together so as to give the necessary resonance. The sound of ægophony is only present at a particular stage of the amount of effusion. It is a sign of very little practical value. We have it only when we do not stand in need of it; and, except as a matter of curiosity, it is hardly worth taking notice of. In pneumo-thorax there is such an extent of reverberating surface, that when the patient speaks a ringing accompanies the voice as if the patient spoke into a bell, and if a bubble of air break on the surface of the fluid in the cavity of the pleura, or a drop of liquid fall on the surface of the larger mass below, a similar ringing accompanies it. The former is metallic resonance; the latter metallic tinkling. There is no mistaking them for any other sound. If you will now remember the two grand classes, and first ascertain, on hearing a sound, to which class it belong, there will be almost no difficulty in determining what the particular sound is, while knowing the mode of production of each will much facilitate its recognition. I have found the divisions I have made in this classification sufficient for all purposes, whether of scientific or practical investigation, and I think you will, on trial and experience, agree with me.

ON HIP DISEASE AND LUMBAR ABSCESS.

By Wm. Oliver Chalk, Esq.
Resident Surgeon to the Royal Sea-Bathing Infirmary, Margate.

[Continued from p. 831.]

(For the Medical Gazette.)

The earlier indications of hip disease, such as flattening of the nates, slight limping, pain on pressure in the groin, enlarged inguinal glands, canting of the pelvis, with apparent lengthening of the limb, &c. &c. have been described by various authors; but above all, pain in the knee has been esteemed one of the chief and premonitory symptoms of its approach; this circumstance alone being considered sufficient to indicate disease of the articulation itself. Too much importance, however, has been attached to this as a diagnostic mark, and it has proved, in my estimation, a constant source of error; for I shall be enabled hereafter to show that this symptom almost always accompanies incipient lumbar disease, and that it is generally absent in the earlier, and not always present in the latter stages of morbus coxæ. When we take into consideration the relative situations of the psoas muscle and lumbar nerves which are destined to supply the lower extremity, it must be at once apparent that abscess forming in that situation (whether as a consequence of carious vertebræ, or, as often happens, of a deposition of tuberculous matter in the cellular tissue abounding in the neighbourhood of that muscle) must transmit pain along the course of the nerves, as they are naturally involved in the disease; and hence the hip, the thigh, and knee-joint, become alternately or simultaneously affected. The flattening of the nates, and wasting of the muscles of the thigh, are equally common to the early stages of hip and lumbar abscess, the cause being the same in both instances. The patient throws the weight of the body on the sound limb, maintaining the opposite one in a state of quietude by every possible means in his power; and in this way the canting of the pelvis, and the muscular atrophy consequent on inactivity of the extremity, arise.

The various modes of examination recommended by authors to ascertain if disease be situated in the hip-joint are open to objection. We are told by some to use flexion and extension alternately, and to rotate the limb outwards and inwards; and that by these means we shall not fail to discover a crepitus, &c. If the affection be so far advanced as to give rise to this sensation, it will rarely happen that a necessity can exist for a proceeding fraught with so much suffering to the patient*, as in that case there will be other pathological phenomena sufficiently demonstrative of the condition of the joint, without resorting to such means. Pain, imparted by extension and rotation of the limb outwards, cannot be considered indicative of morbus coxæ alone, for it is quite certain that in both instances the psoas muscle is brought into forcible action, and, therefore, if disease be situated in that part, pain must be transmitted along the course of the nerves: hence the patient refers it to the hip and knee. Pressure behind the trochanter affords us no better means of diagnosis; for if an accumulation of pus exists in the lumbar region, the ischiatic nerve will always be found more or less sensitive on pressure: thus an examination so conducted, and in this particular situation, is inconclusive. Not less so is that where pressure is made in front of the joint in the groin. The psoas and iliacus internus muscles, as they quit the pelvis, pass immediately over the articulation; consequently any inflammatory excitement from the formation of abscess in the first mentioned of these must naturally tend to render it highly sensitive to pressure. (That such is really the case, I have had frequent opportunities of proving). Again, the very common coincidence of sympathetic enlargement of the inguinal glands in both disorders, is another source of pain, and, therefore, not to be depended on as pathognomonic of morbus coxæ only.

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* I have more than once seen severe symptoms ensue not only in this, but in other, diseases of joints, after an examination so conducted.

It is quite certain that whenever flexion, extension, rotation outwards and inwards, are resorted to in disease of the joint, pain must be the consequence, as by all these means the head of the femur is moved in the inflamed socket. But extension and rotation, as I have before mentioned, are equally productive of it in the earlier stages of lumbar abscess.

Another method of examination is adopted by some surgeons. The patient is placed in a supine position, the thigh is bent on the pelvis, and then the knee is struck by the hand; and if pain is given to the articulation, they consider it a sufficient evidence of disease. But this also is liable to objection, as the sensation so produced may be equally conveyed to the psoas muscle. To obviate some of these difficulties, I usually adopt the following method:— The patient being placed in bed or on a couch, lying on his sound side, I use percussion immediately over the great trochanter, by which means the shock is more surely and immediately communicated to the joint; and if pain is produced by it as well as by flexion, rotation, &c. &c. it may be considered in most instances characteristic of coxalgia.

The pain is often very acute even on very slight percussion. The following case is a good illustration of the fact.

Henry Lancaster, æt. 11, admitted as an out-door patient, June 6th, 1836, suffering under disease of the hip, on the right side. States that about eighteen months since he received a violent kick in the groin, and that at the same time he fell down a flight of stairs. He complained of slight pain the following day, which, however, soon ceased, and he experienced no return of it until three weeks afterwards, when the hip-joint became painful, and has continued more or less so up to the present period. The toe is turned inwards, and since the recurrence of the symptoms he has been in the habit of resting the heel of the affected limb on the instep of the sound one; and such at this time is the common position of it: he says distinctly that he has never had any pain in the knee, and that, when lying down, the hip-joint is comparatively easy. He limps in his walk, and uses a stick. On slightly percussing the trochanter, he experiences acute pain. Rotation, flexion, and extension, also produce considerable suffering. His general health is much impaired; the tongue is furred, pulse feeble and quick, bowels costive, motions of a light yellow colour, pain on pressure in the region of the liver. Leeches were applied to the epigastrium, followed by a blister. Alterative doses of mercury, together with tonics of sarsaparilla and bark, were exhibited. He was ordered the warm salt water-bath three times a week, followed by the warm douche, applied immediately over the joint. This treatment was persevered in for six weeks, at the end of which time he left the Infirmary, having recovered the use of his limb, the articulation being entirely free from pain, and his general health reinstated. I have already observed, that pain in the knee is not always present in the latter stages of hip disease, although it is obvious that such must generally be the case, especially when suppuration has taken place in the cavity of the joint, for under such circumstances the soft parts become implicated in the disease, and pain as a necessary consequence is transmitted along the nerves of the limb.

The two following cases, which terminated fatally, are instances of the absence of pain in the knee-joint, from the beginning to the termination of the disorder.

Ann Mervin, æt. 7, admitted on the 4th May, 1836. The local symptoms were as follows: great flattening of the nates on the left side; limb lengthened to about two inches; the trochanter, knee, and ankle joints, lower than those of the sound extremity; the foot turned outwards, and the leg extended. There was no perceptible alteration in the osseous structure. Flexion, extension, &c. &c. caused great suffering. Slight percussion over the trochanter communicated acute pain to the articulation. She complained of pain in the upper and fore part of the thigh, and stated distinctly she had never suffered in the knee*. She was in a state of extreme debility and emaciation, and labouring under contant febrile accessions. The pulse was extremely quick and feeble, the tongue furred and very red at the tip, constant diarrhœa, evacuations of a clay-coloured and yeasty appearance. She was also suffering from a short hacking cough, accompanied by occasional dyspnœa. The abdomen was generally tender, especially in the hepatic region. The treatment was chiefly palliative; and every endeavour was made to remove the more urgent and distressing symptoms, but with little success. She died on the 21st of June following.

A post-mortem examination was instituted a few hours after death. On reflecting the integuments of the hip, I was struck with the atrophous appearance of the gluteal and subjacent muscles. They were so thin and flaccid, and so pale in colour, that they could hardly be said to exhibit the characteristics of muscular fibre. The capsular ligament was entire: on dividing it, the head of the femur, which was in a state of incipient caries, was readily disengaged from the cotyloid cavity. The ligamentum teres was entirely destroyed and removed by absorption, not the slightest vestige of that structure remaining. At the point corresponding with the attachment of the ligament and the synovial glands or apparatus, the bone was exposed to about the size and appearance of a sixpence. The synovial surfaces had lost their usual shining appearance, from the absence of the natural secretion. Small portions of tubercular matter were observed on the head of the femur and in the cavity of the joint. The viscera of the chest were in a healthy state; the liver was atrophous and of a pale yellow colour; the gall-bladder contained scarcely any bile, and what little there was, could scarcely be said, as far as appearances went, to vary from its natural state, except that it was unusually inspissated. The spleen was very small, but not much altered in structure or appearance. Some of the mesenteric glands were enlarged; the greatest size not exceeding that of a large pea.

Esther Bond, æt. 8, admitted May 19th, 1836, suffering under disease of the left hip-joint, in its suppurative stage. There is considerable fulness of the nates, more especially in the vicinity of the articulation, forming a hard and circumscribed tumor; the prominence of the great trochanter cannot be traced; the parts are highly sensitive and painful; percussion over the joint causes severe suffering; the limb is wasted, lengthened, and turned inwards. She lies with the knee bent, and rests the limb on the sound one; but the thigh is not flexed on the pelvis. Any attempt at flexion, extension, or rotation, produces excruciating pain. There is a sinous opening on the middle and exterior of the thigh, from which about 4 oz. of tolerably healthy pus is discharged daily. She states distinctly that she has never experienced any pain in the knee. Her general health is much deranged; pulse quick and small, bowels inactive, evacuations unhealthy, urine thick and scanty, depositing a copious red sediment; hectic fever, profuse night sweats. The patient remained under treatment for a period of five months, during which time a variety of means were adopted, but without success. She died of cerebral disease, October 15th.

The body was examined a few hours after death. On reflecting back the integuments and the gluteus maximus a large cavity was disclosed, communicating with the opening on the thigh, from which the pus flowed freely. The subjacent muscles were entirely destroyed, with the exception of some of their tendinous insertions about the neck of the femur. The capsular ligament was for the most part destroyed by the ulcerative process, although it was just sufficiently entire to retain the head of the femur *in sitû*, which, together with the cotyloid cavity, was in a carious state. The latter was so extensively affected, that a large perforation existed at the bottom of it, through which about 2 oz. of pus had escaped and lodged at the side of the rectum. The woodcut, No. 1, (copied from a copperplate engraving which was executed from the preparation in my possession), is a representation of the state of the parts. The thoracic and abdominal viscera were next examined: the former were healthy. The liver was engorged, and presented on its convex surface two or three patches of yellowish induration, which afforded considerable resistance to the scalpel on incision. The gall-bladder contained about a drachm and a half of inspissated bile, not varying much from its natural colour. A few of the mesenteric glands were tubercular, and enlarged to the size of a pea. The whole substance of the brain was in a marked state of ramollissement[*]: the lateral ventricles contained about 12 oz. of serum. The arachnoid membrane was thickened in places, and its vessels highly congested.

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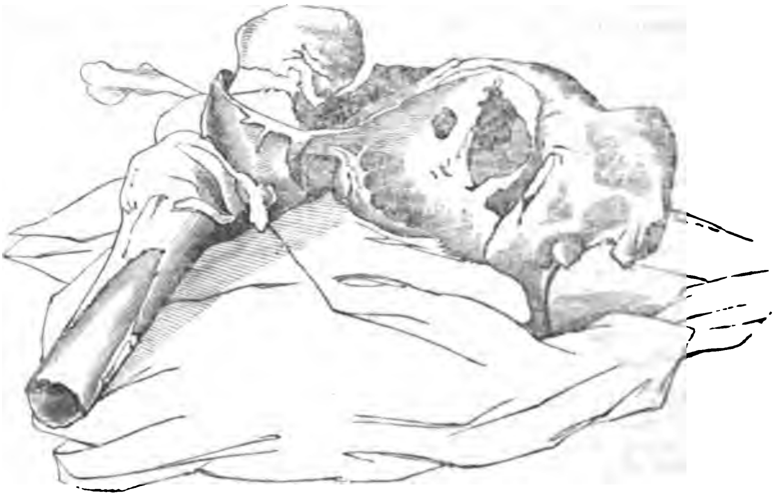
* As the patient was so young, I made particular inquiries of her parents, who corroborated her statement in this respect.

Fig. 1.—*Case of E. Bond.*



A. Perforation at the bottom of the cotyloid cavity.

The foregoing cases appear to me illustrative of another fact, namely, that whenever the ligamentum teres, and the synovial apparatus or glands, are destroyed by inflammation, caries of the socket may commence at that point. If, in the first case, (that of Ann Mervin), the patient had lived long enough, it is obvious that destruction of the bone would have proceeded from that spot where it had been denuded of its natural covering. In the second, (that of Esther Bond), it has been seen that almost the whole of the bottom part of the cavity was destroyed, and it is probable that it originated in this circumstance. In both instances, it will be remembered, the limb was lengthened; in each the disease originated from violence to the hip-joint—a circumstance which I ought to have mentioned in detailing their respective cases. I have also another preparation in my possession, wherein the bottom part of the cotyloid cavity is destroyed by caries forming a small opening into the pelvis. This was the case of Daniel Macarty (to be hereafter mentioned), who suffered from lumbar abscess, and consecutive disease of the joint. The part in which affections of the articulation first arise has been the frequent subject of discussion; but it is plain that if they are produced by violence, either the synovial surface, cartilage, round ligament, or bone, may be injured, according to the nature of the accident; and, what is most likely, more than one of these structures may suffer at the time. It is therefore extremely difficult to decide upon this point; nor does it appear to me of any great practical importance: let the disease commence where it will, parts so intimately connected and mutually dependent on each other as the complex apparatus of the hip-joint, must soon be involved. Accordingly, whenever we are called upon to examine those who have died of this affection, the destruction that has taken place is generally great. The extent to which this may proceed is shown by the woodcut, No. 2. It is the case of George Abel, æt. 6, admitted May 14, 1835, suffering under disease of the right hip. The local symptoms were most severe, especially during the latter period of his existence. There was a sinus on the middle and outer part of the thigh, discharging a fœtid and unhealthy pus. The patient endured excruciating pain in the hip, knee, and leg, on the slightest movement. He rested the limb affected on the sound one, and lay with his hand grasping the thigh just above the knee. The pain was constant, his rest broken, and when he slept, which was for short intervals only, he generally awoke screaming with intense agony. The general symptoms were not less severe He was constantly suffering from febrile accessions, followed by profuse sweats, ardent thirst, pulse feeble, and so accelerated that it could scarcely be counted. The abdomen was generally tender to the touch, more especially in epigastrio. He died about six weeks after his admission.

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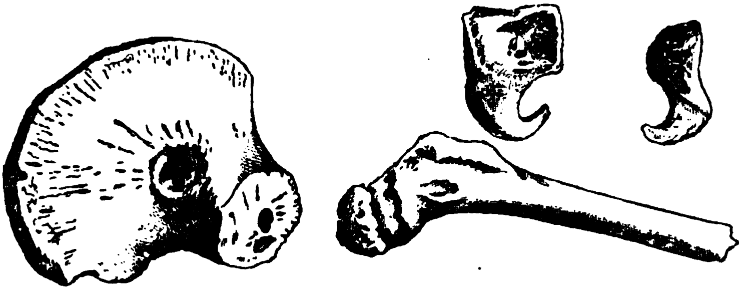
[*] The ramollissement could not be attributed to decomposition, as the post-mortem inspection took place in less than four hours after death.

FIG. 2.—*Case of George Abel.*



On examining the joint, I found that the bones entering into its formation were entirely separated, the head of the femur, pubis, and ischium, lying detached, and these, together with the ilium, were in a state of caries. Pus had been extravasated beneath the periosteum on the dorsum of the latter bone, forming a small cup-shaped depression on its surface. This will be seen by referring to the woodcut. The destruction of the soft parts was so complete, that the head of the femur fell through the opening made by the first incision in the integuments. The thoracic viscera were generally healthy. The liver was small and atrophous, of a uniform dull yellow colour, and so light, that when a portion was thrown into water it floated on its surface. The spleen was indurated, and the mesenteric glands slightly enlarged. One of the symptoms peculiarly characteristic of hip affections in their earlier stages, is the manner in which a patient stoops to pick up any thing from the ground. He bends the knee, but does not flex the thigh on the pelvis, and endeavours, by stooping the body forward, to obtain the desired object. The reason of this proceeding is obvious: if he attempted it in the usual manner, he would be obliged to rotate the head of the femur in its socket, and thus produce pain. It has been stated by some authors, that the limb is thrown behind the patient in performing this action, but in doing so the head of the femur is brought into movement; and I shall be able to show that the last-mentioned manner of using the limb is peculiar to persons affected with psoas abscess.

[To be continued.]

COMPOUND CATHETER FOR THE TREATMENT OF STRICTURES IN THE URETHRA.

To the Editor of the Medical Gazette.

SIR,

IN the number of the MEDICAL GAZETTE published on the 22d ult., Mr Foulkes, of Liverpool, has published an account of an instrument, for the treatment of strictures of the urethra, which is, in all essential respects, identical with a "compound catheter" which I have, for ten years past, been in the habit of using. Both instruments consist of three catheters, incased one within another; the only difference being, that while his smallest catheter is of the ordinary construction, mine has an open orifice, like the other two, so as to admit the passage of a probe-pointed silver wire. This instrument was constructed for me in the year 1831, by Mr. Peter Aitkin, of this city. I showed it soon after at a very full meeting of the Medical Society of Glasgow, which then counted among its members most of the eminent medical men in the city. My friend, Dr. Lawrie, Andersonian Professor of Surgery, has been in the habit of showing it to his class when lecturing upon stricture. I have myself employed it in practice, not only in private, but at the public hospital, and have pointed out to the students there its peculiar construction and advantages, both in the wards, and in my clinical lectures. The instrument, therefore, has been long very well known in the medical circles of Glasgow.

The instrument made by Mr. Aitkin is of silver, but I had long intended to have a similar instrument formed of elastic gum; but was prevented from doing so by our having no catheter-maker in Glasgow to whom I could apply. In the month of September, last year, a catheter-maker from England called upon me, at my house, for the purpose of disposing of his instruments. I mentioned the subject to him; and as my silver instrument was then at the hospital, he called there next day, by my direction, when I showed it to him. He proposed to give silver tips to the catheters, just as has been done in Mr. Foulkes' instrument; but on my objecting to these, as likely to irritate the urethra, he said it was quite practicable to make the instrument without them, and received his order accordingly. I neglected to take this gentleman's address, and I have never since had any tidings of him, or of the instrument which he promised to make.

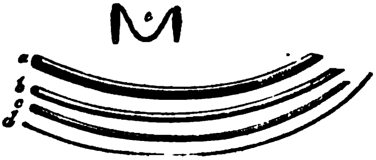
I beg, most especially, that I may not be understood to say, or in the most remote manner to insinuate, that Mr. Foulkes received, through any of the channels I have mentioned, or in any other way, any hint or suggestion which might have assisted him in the invention of his new instrument. It is quite possible that the same principle may occur to the minds of two different individuals, without any communication; and it is also possible, although it is a more remarkable coincidence, that they should carry the principle into the details of its practical application in the very same way. My objects in now addressing you are, in the first place, to express my concurrence in Mr. Foulkes' recommendation of the instrument as a highly useful one; and, in the second place, to do what Mr. Foulkes, and every other man who has ever taken the trouble to invent an instrument and get it constructed, will acknowledge to be just and natural—viz. to establish that I did invent the said instrument about the year 1822, had it constructed in the year 1831, and have since been in the habit of using it in practice.

May I, therefore, request the favour of your inserting the following abridged extracts from my note-book for 1831, under the title "Stricture Apparatus."

During the last ten years I have been intending to have an instrument constructed for the treatment of strictures of the urethra. The idea first occurred to me, when I had a number of such cases under my care in the infirmary here (1821-2). I have since thought of it every time a case of the kind presented itself, but it was only lately that I put the design into execution, in consequence of the occurrence of a case of great difficulty, which baffled all the usual modes of treatment. [Here follow the details of this case, to which I was called by my late pupil, Mr. Alexander, and which ultimately required the operation of puncturing the bladder through the rectum.]

It is only with an instrument of small size that we can hope to pass a narrow stricture of the urethra. Difficulty is often experienced in passing such an instrument, even in the healthy state of the passage, from the point getting entangled in the lacunæ, or folds of the mucous membrane, when the pressure of the instrument is no longer exerted in the direct line of the axis of the urethra, but obliquely upon one side, so as to endanger the formation of a false passage. When, therefore, in a case of stricture, difficulty is experienced in passing a small instrument, we are never sure whether we are pressing directly against the obstruction, or laterally against the sides of the urethra. The instrument here described is chiefly intended to obviate this difficulty, by introducing all small instruments in the inside of others of larger size. It consists of three bent silver tubes, incased one within another, and open at both ends; so that each of the two smaller passes easily along the one immediately larger, and out at either end. The tubes are all segments of the same circle, 23 inches in diameter. The largest (A, fig. 1) is 10 inches long, and one-fourth of an inch in thickness; the second (B) is an inch longer, and one-sixth of an inch in thickness; the third (C) is twelve inches long, the sixth part of the whole circumference of the circle, and one-eighth of an inch in thickness. A probe-pointed wire (D) passes along the inside of the smallest tube, and exceeds it in length by about an inch.

Fig. 1.

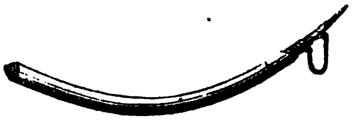


a. Outer or largest tube.
b. Middle tube.
c. Smallest or inmost tube.
d. Probe-pointed wire.
e. Slips connected by chain.

The point of each of the tubes is rounded, so as to pass along the urethra without irritating it; and the upper orifice is cut obliquely, and exactly parallel to the direction of the point, or to the tangent touching the circle there: in this way, by merely inspecting the outer orifice, we know at once the direction of the point. The upper part of each of the two smaller tubes and of the probe-pointed wire is graduated, so as to indicate, in decimal parts of an inch, the exact distance it may have passed beyond the extremity of the tube immediately larger.

When the instrument is to be used, we convert it into a single piece, (as shewn by fig. 2,) by placing the smaller canulæ within those immediately larger, and the probe-pointed wire within the least. The points of the smaller canulæ are made to project, so as to give the instrument a rounded conical point; and in this form the whole is secured firmly by introducing two slips of silver (E, fig. 1,) at the top, between the canulæ. The circular form of the instrument requires a slight difference in the mode of introduction from the usual method of introducing the common catheter. The instrument is carried on till it meets with an obstruction; we then withdraw the silver slips, and endeavour to overcome the resistance of the stricture by manipulating with the smaller canulæ and probe; or, if found necessary, with bougies or elastic catheters introduced through either of the two larger canulæ.

Fig. 2.



The instrument put together, and the different tubes fixed by the slips.

The account, given at length in my note-book, of the advantages of the instrument, may be thus abridged:—1st. The instrument acts on the principle of a wedge, the dilatation by the larger canulæ exterior to the stricture assisting the action which the smaller canulæ and probe exert upon the stricture itself. 2d. We can employ forcible dilatation by means of the probe or smaller canulæ, or elastic instruments substituted for them, with much more safety than with any single instrument, because we are more certain that the force which we employ is directed in the line of axis of the urethra. 3d. In cases of false passage, the compound instrument is much less liable than a single one to enter the false passage, because the smaller pieces cannot so readily take a lateral direction from the line of axis.—I remain, sir,

Your obedient servant,
Andrew Buchanan, M.D.

Glasgow, 110, St. Vincent Street,
Feb. 15, 1841.

VACCINATION.

To the Editor of the Medical Gazette.

SIR,

YOUR last number contained a letter from Mr. Henry Crawford, vaccinator to the East Ashford Union, requesting information, on a point of vaccine practice, from the correspondents of your journal generally. I cannot be insensible to the compliment paid me, by selecting my name from among the many who are fully competent to reply to the question, and willingly offer to him and your readers the results of my reflection on the case submitted to us.

Mr. Crawford inquires whether a person can conscientiously be registered as having been "regularly and successfully vaccinated," in whom, out of four incisions made, one only takes effect; and that one is retarded in its normal course, by 48 hours.

The question is an important one. I firmly believe that if a person so vaccinated were in after-life to be attacked by small-pox, there are medical men who would seize on these two facts, and adduce them as evidences of imperfect or untrustworthy vaccination. On the other hand, if a child so vaccinated were to pass *unscathed* through a variolous epidemic, such exemption would by others, or perhaps by the very same parties, be brought forward as proof of the correctness and sufficiency of the original vaccination. So prone are we to judge by the result. The question, however, ought to be decided independent of all such *ex post facto* reasoning. Mr. Crawford judiciously inquires, whether under such circumstances the child is to be at once *registered* as a case of *successful vaccination*. In my opinion, sir, he is; and for the following reasons.

If an attempt be made to revaccinate a child, in whom only one (retarding) vesicle appears, after the lapse of one, two, or three years, such an attempt will fail. I have tried it frequently, and always with the same result. This satisfactorily proves that the system has received from the one vesicle a certain influence which it did not previously possess: and this insensibility to renewed insertions of the vaccine virus I hold to be the *only legitimate criterion of perfect vaccination*. Further, it will be found that a vast number of persons who trust for their safety to vaccination, bear upon their arms only one cicatrix, while many who take small-pox subsequently have three or four.

With regard to the retardation of the vaccine vesicle, I feel still more confident in the soundness of this opinion. A too rapid course of the vesicle—a premature areola, and an abbreviation of the ordinary course of the disease—undoubtedly indicates imperfection; but it is otherwise with delay, for full time is then given for the development of constitutional influence. We see all this well exemplified in the phenomena usually called *Bryce's test* (reinsertion of the lymph on the 4th or 5th day after the vaccination), and in the common results of *revaccination*. Rapidity of progress every where indicates imperfection, but I know of no facts which tend to impugn the sufficiency of retarded development. It often arises from that same inactivity of the vessels which determines the number of effective incisions. That is to say, it will often be found, as in Mr. Crawford's case, that, where one only out of four or five insertions takes effect, that one is *retarded* in its course.

These several considerations incline me to say that Mr. Crawford is fully justified in returning his four cases as "successful vaccinations," and in claiming the payment made and provided in the Act for the same.—I am, sir,

Your obedient servant,
GEORGE GREGORY, M.D.

31, Weymouth Street,
March 6, 1841.

NEURALGIA.

To the Editor of the Medical Gazette.

SIR,

CONCEIVING the result contained in this letter to be both interesting and important, I take the liberty of forwarding it to your journal, and by that means adding it to the stock of public facts.

E. L., a female, aged sixty-three, residing in Osborne Street, had for several years been affected with a most painful condition of the nerves of one side of the face, coming on in paroxysms of the utmost severity, mostly towards night. At various times she had tried most of the usual remedies, without experiencing any thing but temporary alleviation. On the 8th of November, during the night, I was sent for, and found the patient in a state of the severest pain. I administered a powerful opiate, which did not produce any material relief; and sleep was not procured until the system was completely exhausted and worn out by suffering. We had the same painful scene repeated on the following night. Under these circumstances, as the branches of the facial nerve seemed to be principally affected, the pain shooting across the cheek down towards the lower jaw, and occasionally upwards towards the temple, I proposed the division of the facial nerve in the parotid gland, after its exit from the foramen. To this the poor woman gladly consented, and I proceeded to perform the operation by making an incision betwixt the mastoid process and the lobe of the ear. My next incision brought me in contact with a nerve, which I supposed, from its situation, to be the auriculus magnus nerve, one of the ascending branches of the cervical plexus. On raising this nerve with my forceps, a state of tension seemed to be produced upon all the nerves of the face which were affected with the pain, and the patient exclaimed that was the place from whence all her pain proceeded. Under these circumstances, as the operation for the division of this nerve is trivial compared with the division of the facial, and as it was just at hand, I determined to try the effects of its division; and the result was most satisfactory: the woman passed a delightful night, and enjoyed some good sleep. The next day she had a little pain, and from that time to the present she has been perfectly well, except having, on one occasion, a very trifling degree of pain. Four months have now elapsed since the performance of this operation, and during this interval the patient has been exposed to the intense inclemency of the recent winter. I am not one of those who would pay too much attention to a solitary case; yet, as a single fact, this seems to me to be important, inasmuch as the means employed have effectually cured, for four months at least, and I hope permanently, a very severe case of neuralgic pain. If I may be permitted to draw any pathological inferences from the fact, I think they would be the following. First, that some of the most severe forms of neuralgic pain are dependent not upon any diseased condition, but simply upon their possessing too great a quantity of their proper nervous energy; and secondly, that this can be reduced by cutting off a collateral, as well as a direct, channel of supply.—I am, sir,

Your obedient servant,
T. T. Lambert,
Member of the College of Surgeons.

Hull, March 2, 1841.

STAMMERING.

To the Editor of the Medical Gazette.

Sir,

I beg to submit to your notice a brief statement of my recent proceedings relative to the cure of stammering, premising that I am at the present time actively engaged in collecting materials for a more lengthened explanation of my views upon the subject.

In the practice of my department of the profession, it has been usual with me to explore the condition of the mouth and pharynx in every case of deafness committed to my care. I have thus discovered that a large number of patients suffering from deafness are affected with enlargement of the tonsils and uvula, and an irritable condition of their investing membrane and the pharynx generally. It has been my constant practice, when I have considered these states at all contributing to the imperfection in hearing, to remove either the tonsils or the uvula, or portions of both, according to the nature of the case, with the most marked and immediate benefit, as far as the hearing may have been concerned. In December last it occurred to me to operate in this manner on two patients. They were, at the time of treatment, so deaf, that I did not then address my questions particularly to them, but to their parents, so that I was unaware of any impediment to speech in these instances. Some time after, as the cure of deafness advanced, I learned from the parents that both children had been stammerers from infancy, and, as much to my surprise as gratification, that the cure of stammering had ensued immediately on the excision of the tonsils. At the time at which I write, the subjects of both these cases remain free from any impediment, though their stammering previously to the operation is represented to me as having been very decided. I had before this remarked that persons with enlarged tonsils were affected with thick and imperfect speech, for which I had often, during the last year, practised excision with the happiest effect, in restoring the voice to its original clearness. Since the cases above mentioned, I have operated on upwards of forty persons, all of whom have immediately felt themselves relieved of their impediment. Many have seemed wild with joy, or have shed tears of pleasure, at the instantaneous restoration they have enjoyed. After the operation, the difficulty of speech which remains is referred by the patient to the lips; they express themselves entirely free from the original difficulty. Something must be allowed for the long misuse of the organ of voice, and the existence of habit, in rendering the voice less perfect than in the natural state. In fact, after their relief, patients have yet to learn the proper use of the vocal apparatus.

I have performed the operation by means of a scalpel, tenaculum, and scissors, without any serious hæmorrhage, and with a small amount of pain, which has appeared somewhat greater in the case of the uvula than the tonsils.

In reflecting upon the subject, the explanation I have at present to offer is, that to produce stammering, the dorsum linguæ, the palatine arches, velum palati, and uvula, approximate together so completely, and perhaps irregularly, as to leave no room for the expulsion of air from the larynx. In a person who stammers, no air issues from the mouth during the abortive effort to speak; but it does so as soon as the patient is relieved from this state, so as to produce sound. The most violent contractions of the abdominal muscles can be seen attempting to force up the diaphragm and expel the air; sometimes all the respiratory muscles, and even those of the body generally, are thrown into violent spasmodic action, as the individual grasps some near object to assist the expulsive effort. In some cases, when there is nothing abnormal about the tonsils or uvula, I find a great congenital narrowing of the entrance from the mouth to the pharynx.

I submit that the operation, which I believe I am the first ever to have proposed or performed specially for the cure of stammering, relieves this malady by making, as I excise the tonsils or uvula, an opening in the valvular obstruction I have described as being formed by the joint agency of the tongue, palatine arches, and soft palate. You will perceive that the principle of my operation is quite different from that ascribed to M. Dieffenbach, and since practised, it is said, with success, in France, by MM. Amussat and Phillips, and in this country by Mr. Bennett Lucas. This operation appears to me to rest upon the principle that the tongue is chiefly concerned in the production of the voice; whereas, I would inquire, does not this organ rather serve to modulate the voice after it has issued from the pharynx, &c., while in stammerers it is the fresh production of sound which creates the difficulty, rather than its subsequent modulation?—I am, sir,

Your obedient servant,
JAMES YEARSLEY.

29, Sackville Street,
March 9, 1841.

AN ACCOUNT OF DIEFFENBACH'S NEW OPERATION FOR THE CURE OF STUTTERING.

WITH CASE.

To the Editor of the Medical Gazette.

SIR,

WE have lately read, in the daily papers, several paragraphs from correspondents, concerning a new operation for the cure of stammering. The French papers have likewise furnished us with accounts of it. But it seems that the English journalists merely copied the French, who obtained their information from the German daily papers, which, indeed, stated the effect of the operation correctly, but described the manner of performing it very imperfectly, and without entering into the particulars at all, as I found on reading them three or four weeks since. The same remark has been made by M. Velpeau, in a discussion which took place at the Academy of Medicine on the 16th of February. It is, therefore, not surprising that the English and French journals should describe incorrectly the nature of the operation, and the manner of performing it, as practised and originally proposed by its discoverer. It is to that bold and distinguished surgeon, Dieffenbach, who lately enriched surgery with that beautiful operation for strabismus (which I first performed in Great Britain, as is decisively evident from my publications, and the testimony of several periodicals), that we are again indebted for the discovery of a cure for stuttering. On the 22d of last month I received from my friend, Professor Dieffenbach his memoir on this subject, as addressed to the Institute of France, and dated the 31st of January, 1841. From the information obtained from this source I was enabled to perform this new operation according to the rules laid down by him, an account of which operation, as well as the leading points of the professor's letter to the Institute, are laid before the profession in the following paper; and if you can find room for it in the next number of your valuable journal, you will greatly oblige, sir,

Your obedient servant,
Aug. Franz, M.D.

19, Golden Square, March 9, 1841.

Professor Dieffenbach says, in the above mentioned memoir, that "the infirmity of stuttering had long engaged his attention, but its probable cure suddenly occurred to him while a patient who had come to him to be operated on for strabismus addressed him with stammering accents. He was led to the idea of removing this impediment by an operation, from observing that the nervous twitchings of the eyelids, and spasms of the muscles of the face, which frequently accompany squinting, immediately disappear after the division of the muscles of the eye. He had frequently seen that by dividing the frænum linguæ, in cases where it was too much tied down, as also by other operations on the tongue or on the soft parts situated at the back of the mouth, some improvement was obtained in those cases where there was a slight hesitation in speech, but never in actual stuttering. He therefore reasoned that in this infirmity the disturbance in the mechanism of speech must originate from a dynamic cause; viz. from a spasmodic state commencing in the trachea, but more especially in the rima glottidis, from whence it extends to the tongue and the muscles of the face and neck: consequently he came to the conclusion that an interruption of innervation in one of the parts affected might be followed by an alteration of the nervous influence, and therefore by a suspension of the disturbance in the mechanism of speech. He thought that this alteration would be most certainly obtained in the nervous action of the vocal organs, by dividing the root of the tongue right across, and through its whole thickness; for doing which he has proposed three different methods:—

1st. The horizontal transverse section of the root of the tongue;
2d. The subcutaneous transverse section of the root of the tongue, with preservation of the mucous membrane;
3d. The horizontal transverse section of the root of the tongue, with excision of a portion in the form of a wedge.

The Professor has operated in two cases according to the two first and more easy methods, but finding that although the patient was able to pronounce a few words without stammering immediately after the operation, yet on its recovery the impediment was not entirely removed, he does not speak in such high terms of these as of the third method. According to the latter he has performed fourteen operations: the earlier cases, he states, are perfectly cured not only of the stammering but also of the spasmodic contractions of the muscles of the face, neck, and thorax, and the latter cases promise an equally favourable result. He therefore pronounces this method of performing the operation, notwithstanding its severity, as far superior to the two former, "since by cutting out a transverse portion of the tongue the alteration of the nervous action on the vocal organs must be more decided; the tongue likewise becomes shortened, and its tip turned upwards, which latter circumstance has always been considered as contributing materially to the removal of stammering."

The Professor further hints, that "in selecting a case for this operation, the greatest circumspection is required; that in the execution of it, great dexterity and quickness are necessary, on account of the situation of the tongue, and the enormous hæmorrhage which of course takes place; and that in the after-treatment peculiar care is to be observed. If a strict attention is not paid to these circumstances, this operation, which inflicts so great a lesion on an important organ, may either be followed by destruction of the tongue, or even by loss of life." The first operation for the cure of stuttering was performed by the Professor on the 7th of January, 1841, on a young gentleman 13 years of age, and was followed by a perfect cure. In this case, he excised a piece, of the shape of a wedge, from the root of the tongue, being three-quarters of an inch at its superior part, and extending through its entire thickness. I shall not enter here into the details of the operation, as they will be seen from the following case, operated upon by myself, according to Dieffenbach's third method.

CASE.—George Read, 17 years of age, of a strumous habit, but otherwise strong and healthy, except an herpetic eruption upon the lips, with which he has been afflicted some time. His parents, brothers, and sisters, were not afflicted with any impediment in their speech, neither was the patient so up to his father's death, which took place eight years ago, and made such an impression on his mind, that immediately after its occurrence he began to stutter. This infirmity, according to his mother's account, has gradually increased up to the present time; so that now he is scarcely able to speak, even to his own family, without great hesitation, though composed and free from excitement in mind and body. He, however, succeeds best in expressing himself by singing in a high pitch what he has to say. When he is in the slightest degree agitated, he can with difficulty stammer out one or two words only, and then his speech becomes convulsively interrupted, and, ultimately, entirely stopped; but when in the least excited, if he attempts to address a stranger, speech entirely fails him. When he first called on me, with his mother, his countenance exhibited the utmost degree of melancholy, the result of this trying calamity. His palate is highly arched, and rather narrow; his tongue could be well raised, and freely moved in the mouth. He aspirated all the vowels, and pronounced them thus —h-h-h-a, whe, whi-hi, who-h-o-o, whu-h-u-h-u; consonants whose pronunciation commences with a vowel, he pronounced thus—hhell, hheff, hhess, &c.; the other consonants he pronounced with more or less difficulty; but d, t, b, and p, he could not pronounce at all. When he attempted to speak, he thrust his head forwards, moving it from side to side; his lips were drawn together, and protruded; and the muscles of the mouth, at the same time acting convulsively, drew them in every direction. The alæ nasi moved as in a paroxysm of dyspnœa. The eyes started forward, and began to water. The muscles of the face were in convulsive motion, as also those of the neck, although in a less degree. The larynx was drawn upwards. His mother informed me that, when in this state, he experienced a sensation of rigidity of the tongue, and as if it were too large for his mouth; as also of constriction of the muscles of the neck, but more especially of those of the larynx. I wished to make him speak a few words; but while attempting to do so, his eyes protruded, tears ran down his cheeks, and the convulsive movements of the muscles of his face and neck, but especially of those of the mouth, became so violent, that he was obliged to desist. During the whole time he was with me, the only word he could in any way pronounce was the word no, which he did as if written thus—h-h-n-nho-o. As he was utterly unable to answer any question, I was obliged to have recourse to his mother as interpreter, who knew from the motions of his lips what he wished to say.

On my explaining to them that a new operation for the cure of stuttering had been tried, and had succeeded in many instances, they readily consented to have it performed, as his stuttering to this dreadful degree, almost equivalent to dumbness, rendered him exceedingly wretched in mind, incapacitated him for business, and cut him off from all intercourse with any but his relatives.

On the 1st of March I performed the operation at the mother's house, in the presence and with the kind assistance of Dr. Ure, Messrs. T. Fowke and W.

Hering, who before the operation satisfied themselves of the patient's utter inability to pronounce the simplest word. The patient was seated in a high chair opposite the window; his head being held in a perpendicular position by one assistant, who, at the same time, drew the angle of the mouth backwards by means of retractors. His tongue being thrust forwards was seized by a pair of strong forceps, (furnished with teeth to prevent them from slipping), which I gave to another assistant to hold; by these means the tongue was steadied and compressed transversely. Having seized the tongue, posteriorly to the forceps, with the thumb and forefinger of my left hand, I compressed it transversely, and at the same time elevated it; then passing a long, curved, pointed bistoury, from the left side beneath the tongue, and at the posterior half, until I felt the point at the right side with my forefinger, I cut directly upwards, dividing the tongue right through. I now grasped the tongue in front of the wound with a pair of long forceps, armed at the point with teeth, pressed it firmly together, and with a small straight scalpel made a section from above downwards, commencing on the dorsum linguæ about half an inch anteriorly to the division already made, and meeting it inferiorly; by these two sections a piece of the shape of a wedge was cut out of the tongue at its posterior half. The wound was now united by six ligatures of thick silk, which were passed in such a manner as to encircle in depth and breadth a considerable portion beyond the margin of the wound, and were forcibly drawn together in order to restrain the hæmorrhage; this was so far successful that only a slight oozing continued for a short time. That the loss of blood during the operation was very considerable is not to be wondered at, when we consider the size and number of the blood-vessels divided. The patient bore this severe operation well, but became rather faint towards the termination, and afterwards vomited large quantities of blood which he had swallowed. As soon as he had washed his mouth with a little water, I was exceedingly pleased to hear him pronounce words which, previously to the operation, he was utterly unable to articulate; such as time, powder, &c., without the slightest hesitation or stammering, and without any twitchings of the lips, or even convulsive movements of the muscles of the face or neck, and immediately afterwards I was surprised by his saying with facility and distinctness, "there is some blood running down my shirt." He was now put to bed, and desired to be kept quiet, and directed not to be allowed to speak, and to have his mouth kept cool by means of cold water. On my calling in two or three hours time I found the case proceeding favourably; no reaction had as yet taken place.

March 2nd.—The patient had slept well during the night. Some febrile action towards night; pulse 120, but skin moist. On examining the mouth I found the tongue somewhat swollen and discoloured; he complained of no pain, but only a feeling of heat in his mouth: there was a great secretion of saliva and mucus, and some difficulty in swallowing. He took, during the day, a good deal of beef-tea, and towards evening a dose of castor oil. Was ordered to continue the application of cold water to the mouth.

3d.—He passed a very good night; was almost free from fever. The pulse had fallen to 95. Tongue rather more swollen; not painful, but thickly covered with a brown substance. To take a saline mixture every three or four hours.

4th.—Still going on well. Pulse 80. I now removed two ligatures, and found that union had taken place.

5th.—Swelling of the tongue greatly abated; but the copious secretion of saliva and mucus still continuing as before. He was now able to swallow liquids with but little difficulty, and was so far recovered as to sit up for a short time. He spoke a sentence or two without the slightest hesitation or stammering, and without any convulsive motions of his lips or face. The remaining four sutures were removed, after which, by cleaning the mouth with some water, a great deal of the brown substance before mentioned came off, leaving the mucous membrane perfectly clean and healthy; in the neighbourhood of the wound, however, it remained adhering to the tongue.

7th.—The tongue still continues clean; can be moved freely, but not without some degree of pain; speaks without stammering.

9th.—Has for the first time taken a

walk in the open air. The movements of the tongue less painful. The mother gives a favourable account of the progress of his speech.

Perhaps it may be as well to state that the muscles divided in this operation are the lingualis, the genio-hyo-glossi, the hyo-glossi, and the stylo-glossi.

I think, previously to undertaking this operation, we ought to consider well whether the nervous system of the patient is sufficiently strong to stand so severe a shock—whether he will, from age or constitution, be able to bear so considerable a hæmorrhage as that which is here inevitable; and it would be advisable likewise to ascertain that the heart and large blood-vessels are in a healthy state. The further remarks I had purposed to make on this important operation will be appended to another paper, in which I shall, on a future occasion, communicate to the profession the final result of the above case, as also the first and second methods of performing Dieffenbach's operation for stuttering, which I have not yet described. But I cannot conclude this account without returning my thanks to my friends, who took great interest in this case, and kindly assisted me through it.

MEDICAL GAZETTE.

Friday, March 12, 1841.

"Licet omnibus, licet etiam mihi, dignitatem *Artis Medicæ* tueri; potestas modo veniendi in publicum sit, dicendi periculum non recuso."
CICERO.

THE TOUCHSTONE OF MEDICAL REFORM.*

THE three letters which Mr. Green has addressed to Sir Robert Inglis and the public, contain, expressed in a more popular form, the sum and substance of what he has hitherto written on the same subject exclusively for the profession. In these, however, he has entered more closely than hitherto into the details of the question; and this is the more important, inasmuch as many of the suggestions he offers are drawn from opinions which prevail, we believe, extensively in the council of the College of Surgeons, and are likely to guide that body in many of the changes which they contemplate making, or seeking to have made, in their constitution.

The first of the letters is "On the Character of a Medical Man in connection with the nature and objects of a profession." In sketching an imaginary picture of what the medical man should be—in showing how he should be *skilful* in manipulation, and in applying all the resources of his art—a *philosopher*, possessing the knowledge of those laws, or rational grounds, which form at once the principles and ultimate aims of all professional knowledge—a *gentleman*, whose conduct is to be the pledge that he pursues his profession as a liberal science, and is in all things guided by strict honour—and a *christian*;—in sketching this, the author has unconsciously drawn his own portrait. A noble thing it would be if one possessing all these qualities in a high degree could be an adequate representative of the profession generally; but it is at present past all possibility. Medical men must be, in a measure, adapted to the state of society around them. The public, it is in these days too manifest, either cannot or will not, afford to maintain practitioners of the rank and elevation in society which Mr. Green and all good men would wish them to hold; and so they who should be philosophers become many of them, against their will, tradesmen. Who, that united in himself all the high and ennobling qualities that are in the *beau ideal* of the surgeon, would consent to have his services tendered for? who, of such a class, would be paid unwilling eighteenpences, or be, for shillings, at the nod and beck of overseers, relieving officers, and parish beadles? Why, none: the true philosopher will rather starve: the more ordinary sort will rather follow the usual practice, drop his philosophy, and earn money by an honest but even degrading practice.

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* In Three Letters, addressed to Sir Robert Harry Inglis, Bart., M.P., by Joseph Henry Green, F.R.S.

Nor are contracts, the tender system, and the screwing down of remuneration for medical aid, confined to those who dispense the public money; they alone, indeed, may publicly advertise that they follow such systems; but there is hardly a master of a household who does not privately pursue the same course; who does not make the expense enter as one of the most important *items* in the question of what medical practitioner he shall employ; and who, when the question comes within a suspicion of the *cætera* being *paria*, does not decide at once for the cheapest. And so it comes to pass, that, what should be a science, is, in many cases, only an art; and that what should be a profession is a trade; and that the index of the medical character is, in reality, not what the dignity of the science and the profession requires, but the money which the public are willing to pay for medical services.

This state of things, it is manifest, will continue just so long as the access to the rights of medical practice are so easy that the public can be supplied with practitioners at their own price; so long as any can practise unexamined and unlicensed; and so long as examiners are obliged to admit to the diploma all who are possessed of only a *minimum* of knowledge. The only remedy lies in preventing the public from setting the standard of professional acquirement by the rûle of their own willingness of expenditure; and this, as we have always held, can be done only by raising the standard of medical education, and making its attainment compulsory upon all. By this only can those to whom trade is natural and pleasing, be prevented from bringing those who hate it down towards their own level. Just as, in ordinary society, the fashion, to which the wisest are forced to succumb, is the invention of fools; so, in these more important things, the standard of respectability is set too nearly at the level of the lowest, because the majority cannot afford to hold themselves far above it. For although medicine may be such a science that it can be followed for its own sake, without any reference to its being a lucrative business, yet we apprehend that there is not more than one in a hundred of those who pursue it, who does not look to it, in the first place, as the source from which he will derive his necessary maintenance; and who will not, therefore, confess that science has very generally to bow before necessity, whenever they come in contact.

To this most important, because most influential part of the question, Mr. Green barely alludes; the consideration of the effect which medical remuneration has upon the medical character seems never to have been entertained by him. And this has probably resulted from his never having felt personally the necessity of considering it; for our author has the double good fortune of being by nature and by education fitted to personate the model character he has drawn, and of being by patrimony set far beyond the temptation of descending from his elevation. However, though by different routes, we have arrived at nearly the same results: he, by a contemplation on the dignity of the science and art of medicine, and on the benefits its liberal exercise would confer upon society—we, by a simple view of the condition of medical practice, and the causes which have mainly contributed to its present state of degradation. The result of either consideration must be, that medical education should be made more general and more liberal—that the amount of knowledge required for the diploma should be raised from its present *minimum*, and that more power should be given to governing bodies, to enable them to prevent the infraction of the privileges of their members, and the necessarily consequent damage of the public welfare. And this brings us to Mr. Green's other letters.

The second of these is, "On the institutions calculated to educe and foster the professional character." These are, in a word, universities and colleges. In them

> "A medical education may be best grounded on those universal elements of science which are the essential constituents of every liberal profession; and a medical education cannot be complete except in such institutions where alone, discipline both moral and intellectual, systematic instruction, and a pledged direction and supervision of the studies, can give the requisite security for the progress and completion of the student's labours; and where the *alumni* are induced habitually to regard themselves as members of one body, brothers in the same household," &c.

All which may be very true, and may perhaps be realized some centuries hence; and we quite regret to descend from the vision which the author has drawn in such pure English, and with such enthusiastic eloquence, to the actual facts of the case. But unless the relation in which the public at present regard the profession be utterly altered, the members of the latter *cannot afford* to be educated in universities; at least the majority of them cannot. In the present state of things, and for some years to come, there must be apprenticeships, and dispensing of medicines, and many other things which one educated in such a university as the author pictures would hold in utter contempt. We say in *such* a university; for to imply, as he does, that the Colleges of the London University are examples of institutions in which the advantages of collegiate education are obtained, is absurd. To them, students come as to any other medical school—not for the cultivation of the pure and most austere sciences—nor for the research of ancient learning—nor for the study of the physical sciences for their own sake—nor to form in themselves any sentiment of honour and gentlemanly feeling—but simply because they have heard of the reputation of the medical teachers, and are anxious to obtain, on the easiest and most secure terms, the knowledge that will enable them to pass their examinations. We know not, in short, any important respect in which the medical schools of the University and King's Colleges differ *in kind* from those of any of the large hospitals: to increase the number of colleges of this kind would not, as far as we know, be of any greater benefit than an equal addition to the number of ordinary medical schools; for to medical students they afford none of the advantages of a university education, however excellent may be their systems of medical instruction.

Indeed, the fact that these two colleges have failed to induce any proportion of medical students to accept the advantages, which their other classes afford, of obtaining a mere liberal education, is to us a sufficient proof that the time is not yet ripe for requiring education in a university as a part of the title to a diploma. We believe rather that this will not come except as the consummation of such improvements as are suggested in the third letter, "On the Regulation and Economy of the Medical Profession."

It cannot be doubted, the author holds, that the legislature is bound, for the security of the public, to provide for the maintenance of a medical profession, and to establish such criteria of the competency of the members as the public shall be qualified to estimate in guiding their selection; and, therefore, it is a consideration of the practical difficulties, rather than any doubt of the principle of interference, that would prevent his urging the legislature to withdraw its countenance from the quack, and to protect, by penal law, his patients. Certainly, for public offices, none but the tested and legally approved should be selected.

One of the main evils of the present state of medical practice, the result of the existence of so many separate governing bodies, forming what the author well likens to "a many-headed monster, which, in its heterogeneous authorities, feebly regulates its ill-combined functions," is the absence of any uniform standard of qualification; so that it is impossible for the public to judge of the competency of any one possessed of any diploma. There should therefore, he holds, be an efficient *head* for the government of the whole profession; and this should be a *State Council for Medical Affairs*, emanating from and responsible to the Government. It should consist of various members, but of as few as the nature of its constitution would permit; they should be members from each of the medical corporations of the United Kingdom, nominated and recommended by their brethren, but appointed by the Crown; and to these should be added a small proportion of Lay Assessors, also appointed by the Crown, who would be for judicial authorities and legal advisers, and one of the members of the Government.

The functions of such a State Council should be, briefly—the power of approval or denial of all bye-laws and ordinances emanating from the several medical corporations, so that, without altering or impairing the functions of any, the characters of all may be assimilated; the taking cognizance of the practices of unqualified persons, and of dishonourable practices among those who are licensed; the superintendence of all matters appertaining to the public health; state medicine and medical police (including the provision for the defect of the present Poor Law in its relation to medical men); and the regulation and supervision of the institutions for instruction, with an especial view to the obtaining of an "harmonious adjustment of a multiplicity of means to a common aim and end."

Such is the general system of alteration proposed. The remainder of the Letter contains remarks on changes that might be beneficially introduced into the existing medical corporations, and especially into the constitution of the College of Surgeons. Presuming that the public and the profession would derive advantage from making the diploma of the College compulsory on all who act as surgeons, the College, if this were granted to it, should undoubtedly be amenable to the country, which it is not now, nor can reasonably be expected to be, so long as it is legally a matter almost of indifference whether a surgeon have its diploma or not. This responsibility would be provided for by its being under the control of the State Council for Medical Affairs; but, besides this, it would probably be necessary to provide some means by which more of the members of the College should have a share in its management. For obvious reasons an open election would be disadvantageous; but for the election of members of the Council, an elective privilege should be conceded to certain members of the general body. Bearing in mind that the College is unalterably and eminently an institution for the promotion of the *science of surgery*, it follows undeniably that the first condition for enjoying the elective franchise should be that of practising surgery exclusively; the electors must be those who are surgeons by profession, and not those who make surgery a subsidiary qualification to medicine, midwifery, or pharmacy. Between these two classes a distinction should be made, by the titles respectively of *Fellows* and *Licentiates;* and the former should be fitted by a high standard of surgical education, not only to be electors, but to be eligible to all offices of honour and trust in the College. For this purpose the candidate for the Fellowship of the College should be, at least, twenty-four years old; should have graduated in arts in a British university, or be competent to pass an equivalent examination; should have testimonials of high moral character; should pass an examination in the ancient medical authors, anatomy and physiology, pathology and surgical therapeutics; should have been engaged six years in professional study; and should be required to furnish a series of clinical reports. Although others than pure surgeons might undergo this examination, and become Honorary Fellows of the College, none others should have the elective franchise, unless they were surgeons of county hospitals.

But here we must cease—at least for the present. We shall probably recur to this latter part of the subject; but, whether we do or not, our readers will do well to peruse the pamphlet before us. Both for the high talent and liberal feeling which it displays, and for the authority under which it is published, it deserves the fairest and most serious attention.

ROYAL COLLEGE OF SURGEONS.

At a Meeting of the Council, on Wednesday, the 3rd inst., Benjamin Travers, Esq. was elected an Examiner, and John Flint South, Esq. (both of St. Thomas's Hospital) a Member of the Council, in the vacancies occasioned by the lamented decease of Sir Astley Paston Cooper, Bart.

LIST OF GENTLEMEN ADMITTED MEMBERS.

Friday, March 5, 1841.

T. W. Hiron.—S. Hobson.—G. T. Vicary.—R. L. Haynes.—J. Spencer.—C. C. Turner.—H. J. Penny.—F. Wright.—W. T. White.—J. B. Stedman.—J. Gray.—W. R. H. Barker.—E. B. Thring.—R. Yaul.

A TABLE OF MORTALITY FOR THE METROPOLIS,

Shewing the Number of Deaths from all Causes registered in the Week, ending Saturday, the 27th February, 1841.

Small Pox	36
Measles	8
Scarlatina	11
Hooping Cough	67
Croup	4
Thrush	2
Diarrhœa	9
Dysentery	3
Cholera	0
Influenza	12
Typhus	30
Erysipelas	8
Syphilis	0
Hydrophobia	0
Diseases of the Brain, Nerves, and Senses	181
Diseases of the Lungs, and other Organs of Respiration	314
Diseases of the Heart and Blood-vessels	34
Diseases of the Stomach, Liver, and other Organs of Digestion	59
Diseases of the Kidneys, &c.	6
Childbed	9
Ovarian Dropsy	0
Diseases of Uterus, &c.	2
Rheumatism	1
Diseases of Joints, &c.	7
Ulcer	1
Fistula	0
Diseases of Skin, &c.	2
Diseases of Uncertain Seat	136
Old Age or Natural Decay	78
Deaths by Violence, Privation, or Intemperance	20
Causes not specified	1
Deaths from all Causes	1040

METEOROLOGICAL JOURNAL.

Kept at Edmonton, *Latitude* 51° 37′ 32″ *N.*
Longitude 0° 3′ 51″ *W. of Greenwich.*

March		Thermometer.		Barometer.	
Wednesday	3	from 35	to 47	29·25	to 29·55
Thursday .	4	27	44	29·75	29·84
Friday . .	5	31	49	29·77	29·28
Saturday .	6	34	50	29·53	29·89
Sunday . .	7	39	55	29·95	30·15
Monday . .	8	42	61	30·27	30·30
Tuesday .	9	34	57	30·30	Stat.

Wind, W. on the 3d; N.W. and W. on the 4th; S.W. on the 5th; W. on the 6th; S.W. and N.W. on the 7th; since S.W.

On the 3d, morning clear, otherwise cloudy; rain in the evening. The 4th, evening overcast, with rain; otherwise clear. The 5th generally cloudy; raining all the afternoon and evening. The 6th and 7th clear. The 8th, morning overcast, with small rain; otherwise clear, and remarkably mild. The 9th, morning foggy, otherwise clear.

Rain fallen, ·585 of an inch.

Charles Henry Adams.

Notice.—Medicus—Malton—next week.

Wilson & Ogilvy, 57, Skinner Street, London.

THE
LONDON MEDICAL GAZETTE,
BEING A
WEEKLY JOURNAL
OF
Medicine and the Collateral Sciences.

FRIDAY, MARCH 19, 1841.

LECTURES ON THE PRINCIPLES AND PRACTICE OF PHYSIC,

Delivered at King's College, London,

BY DR. WATSON.

LECTURE XXVI.

Acute Hydrocephalus continued. Prognosis and Mortality of the disease. Treatment: blood-letting; purgatives; cold; mercury; blisters. Prophylaxis. Spurious Hydrocephalus. Chronic Hydrocephalus, or Dropsy of the Brain. Shape of the head and face. Anatomical conditions. Symptoms.

THE disease, of which I described the symptoms in the last lecture, acute hydrocephalus, is a very dangerous disease; and, when once it is fairly established, many more die of it than recover. Our chance of saving the patient's life, by active treatment, is always greater in proportion as the complaint, or the tendency to the complaint, is detected *early;* and for that reason the precursory symptoms possess so high an importance.

When our treatment commences while the symptoms are as yet rather those of the precursory state, than of the confirmed disease, it is impossible to say how many of those cases which, under such treatment, terminate favourably, would otherwise have ripened into well-marked hydrocephalus; and we must be content to have it said, without its being possible for us to refute the assertion, that not all of the disorders which we treat as acute hydrocephalus are really instances of that disease. We must act upon the worst supposition, and not wait until the nature of the symptoms *demonstrate* that the malady is present, while they demonstrate also, at the same time, that it is well nigh hopeless. These are cases which peculiarly demand decision on the part of the medical man; and we are bound to act, in some instances, upon very slight indications; as when, for example, we perceive what we think threatenings of acute hydrocephalus in a scrofulous child, or in a child belonging to a family in which others have already been cut off by that disorder.

It has been supposed, by some, that the case is hopeless after effusion has taken place, but we cannot be sure of that; nay more, there are no symptoms by which we can ever tell *for certain* that effusion *has* taken place.

I remember to have heard it gravely maintained, in the debating societies which I sometimes attended when a student, that there are no such things as absorbents, and no absorption, in the brain; and therefore that perfect recovery from serous effusion in that organ is impossible. But this notion is refuted by plain and well-known facts. We shall see hereafter, that blood poured forth within the nervous pulp is capable of being removed by absorption. How an opinion so palpably erroneous could ever have found credit, except with that class of men who can or will believe nothing which they cannot see, I am at a loss to guess.

The prognosis, always doubtful or bad, is a little better when the disease is violent, and occurs in tolerably healthy subjects, than when it creeps on slowly and insidiously, and in weakly, scrofulous patients. In the former case there is more room for the adoption of active measures; and the disease is more likely to be amenable to remedies, and less likely to be obstinate; it is also less likely to depend upon a permanent cause, such as the existence of a scrofulous tumor in the brain.

The probable issue of the disease is often judged of by the state of the pulse. The quick pulse belonging to the early stages of the disease will become slow; but it may become slow in two very different ways: it may diminish in frequency in a gradual and moderate manner, and then we may hope that the alteration proceeds from the progressive declension of the fever; or it may drop suddenly, which would be a reason for our fearing that the second stage of the disease was about to establish itself. We must take care, under the former circumstances, not prematurely to assert that the disorder is on the decline, and the patient safe. On the other hand, if the pulse has been morbidly slow, a gradual and slight increase in its frequency must be considered as a favourable omen; while its rapid and great acceleration would shew that the disease was passing into its worst and final stage.

I have already cautioned you against being misled by that deceitful truce, and apparent improvement, which is apt to take place in the course of the disease. If the signs of amendment continue, or make progress, during two or three entire days, we may venture to admit a little more hope. But the patient can never be considered secure while any approach to what are thought symptoms of effusion remains; while the pupil continues dilated for example, or even so long as it does not contract briskly under a strong light.

The prognosis is especially bad when acute hydrocephalus supervenes upon other disease; or when it is engrafted (as it sometimes is) upon the chronic form of the disorder. It is very seldom that the acute form subsides into the chronic.

To show you that we are warranted in the expectation of sometimes carrying our patient through this most perilous malady, I will mention a few statistical facts that have been recorded in respect to its mortality. Dr. Odier, of Geneva, states that, upon an average, eighteen cases of acute hydrocephalus occur every year in that place; and of these six get well; *i. e.* the recoveries are to the deaths as one to two. Dr. Gölis, to whose work I referred in the last lecture, and who had the charge of a large institution for children in Vienna, gives an account of thirty-seven cases, out of which five recovered. He had seen, upon the whole, forty-one instances of recovery from acute hydrocephalus. Dr. Mills, who has also written on the disease, has narrated twenty-eight cases, all of which died but seven; and M. Bricheteau lost four out of eleven. Adding these together, and taking the average, we have seventy-six instances of the disease, and sixteen recoveries: rather more than one in five. The cases in which recovery took place were mostly those in which vigorous measures were adopted *early*.

Treatment.—The treatment resembles that which I have already recommended when adults are attacked with encephalitis. It consists, therefore, in blood-letting, purgatives, cold to the head, mercury, and perhaps blisters. Of course the differences of age will require some modification of these remedies.

The only event of the inflammation compatible with the safety of the patient is resolution; and this we must endeavour to bring about (I cannot too often repeat it) by *early* as well as by free blood-letting: bleeding from the arm; or by leeches; or by cupping. You must bear in mind that in very young children, leeches produce the effect of general blood-letting. It is a matter of obvious importance to ascertain to what extent we may safely and beneficially carry the abstraction of blood in infants. Dr. John Clarke, a man of large experience (the elder brother of the present Sir Charles Clarke), says that very young children will very well bear the loss of blood, even to fainting, once or twice repeated: but that their powers are apt to sink if the bleeding, to that extent, be had recourse to oftener. For infants a year old, three ounces is reckoned a full bleeding. I do not like opening the jugular vein, for reasons with which you are sufficiently acquainted; and if the requisite quantity of blood cannot be obtained from the vein in the arm, cupping from the nape of the neck may be substituted; or leeches may be applied to the temples, or to the mastoid processes. It is necessary to recollect that leeches generally produce a freer discharge of blood in children than in adults, on account of the greater activity of the capillary circulation in the former. No general rule can be prescribed in respect to the number of leeches that should be applied; three will take as much blood in one case as half a dozen in another; but assuming that one leech will, on an average, cause the discharge of one ounce of blood, we may apply three of them to a strong infant of six months, when the symptoms are violent. Of course the bleeding is to be suspended if syncope occurs. In older children the quantity of blood necessary to be taken will be somewhat larger: six ounces of blood taken from a vein is a full bleeding, I should say, for a child five or six years old. I mention these quantities as mere approximations, as guides to what you may expect to find practically required: the true measure and test of salutary blood-letting in this, as well as in other inflammations, is to be found in the effect it has at the time. The first bleeding, in what manner soever the blood is taken, should be a sufficient one; should produce a decided and manifest impression. By attending to this rule you will break the force of the disease more surely, and more safely too, than by drawing blood in frequent driblets; a mode of using the remedy calculated to subdue the patient rather than to overcome his malady. You must afterwards go on with the leeches to the head, or you must withhold them, according to the exigency of the particular case; according to the condition of the pulse, the continuance or the cessation of the pain, the increase or diminution of the fever, and so forth. And you are not to forget that as you have to deal, in general, with scrofulous children, any *superfluous* removal of blood, the abstraction of more than is required for extinguishing the inflammation within the head, will be likely to prove injurious to the general system. After the full formation of the comatose state, a farther prosecution of the bleeding has sometimes been rapidly followed by death.

Next in rank and importance to bleeding come *purgatives*. They are to be exhibited with the threefold view of correcting depraved secretions, of clearing the alimentary canal of its irritating contents, and above all, of deriving, as the phrase is, from the head; producing a discharge of the watery parts of the blood, and taking off the stress from the cerebral arteries. The best forms of purgative medicine to be used for these purposes with children consist of calomel and jalap, or calomel and scammony; and if these do not act freely, senna and salts must be given in aid of them. I have already made you acquainted with Dr. Abercrombie's high opinion of the efficacy of purgative medicines in inflammation of the brain, whether in the child or in the adult. Dr. Whytt, again, states that he never saw even temporary relief of the symptoms produced by any other means than those which increased the evacuations. Purgatives are to be administered, therefore, at an early period. But sometimes the stomach is so irritable that it will reject them. A previous bleeding will often correct this; and it is no small part of the benefit derived from the abstraction of blood, that it prepares the way for the more effectual operation of aperients and of mercury. A large clyster will often be of service, both in settling the stomach, and in procuring stools, when there is much vomiting, and a continual rejection of medicine given by the mouth. Dr. Cheyne mentions a form of medicine by which he sometimes succeeded in quieting the irritable stomach, and procuring evacuations; he would give a drachm or two of magnesia, saturated with lemon juice, every two or three hours. You may sometimes get calomel and scammony, however, to remain on the stomach, when almost every other medicine is rejected. The purgative plan should be steadily persisted in for several days.

To show you how torpid the bowels are apt to be in this disease, and how difficult it sometimes is to procure evacuations from them, I may mention the following circumstances which I heard Dr. Alison relate as having occurred in the practice of his uncle, the late Dr. Gregory, of Edinburgh. He had one patient who took 140 grains of calomel in the course of five days, yet his bowels were not relieved, till he had also taken two doses of jalap; the first of 30, and the second of 35 grains. In another case, a child of twenty-eight months took in nine days 350 grains of calomel (nearly 40 grains a day); and in six of these days 136 grains of jalap (more than 20 grains a day): the effects were a gentle purging from the jalap, none from the previous calomel, and but slight salivation. The child recovered after having been nearly in a comatose state. Of course large doses of this kind are never to be given, until the inefficacy of smaller ones has been ascertained.

Cold applied to the head:—I have before given you examples of its power. It is especially useful in the early periods of the disease, when there is much heat, and when evacuations have been obtained. I am doubtful about the propriety of keeping *ice* in contact with the surface of the head in very young children. It will in many cases be sufficient, to lay a linen rag wet with cold water (or spirit and water, to promote evaporation), upon the child's head, taking care to renew it frequently, not merely as often as it gets *dry*, but as often as it gets *hot*; or water may be poured from a pitcher upon the head, a basin being held under the chin. Dr. Darwall states that he has known cases, which seemed utterly hopeless, recover by letting water fall in a small succession of drops upon the scalp, and continuing it until the head no longer recovered its high temperature upon intermitting the dropping. I need scarcely say that under all circumstances it is expedient to keep the head somewhat elevated. The influence of this mode of applying cold to the head is increased, and, perhaps, rendered safer, by immersing the lower extremities of the patient at the same time in warm water*.

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* Since this lecture was delivered, I have read Dr. D. Davis's recent publication on acute hydrocephalus. He adds the weight of his experience in attestation of the great efficacy of blood-letting, early performed, and carried to deliquium animi. He mentions, likewise, a mode of applying cold, which is new to me, and likely, I should think, to be extensively useful. It forms one of the many valuable purposes to which caoutchouc has of late years been turned. A bag, or hollow cushion, made of the water-proof material invented by Mr. Mackintosh, is first filled with very cold water; then about half of its contents is suffered to escape, and the remainder secured by turning the stop-cock. Thus no air is included. Upon this cushion the patient's head is to be placed. The "water cushion" applied in this manner to

become slow in two very different ways: it may diminish in frequency in a gradual and moderate manner, and then we may h that the alteration proceeds from gressive declension of the f drop suddenly, whi our fearing that disease was abo must take care stances, not disorder is o safe. On th been morb increase i as a fav great diseas stage

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opinions have been held in respect to the value of mercury in this disease. Knowing how powerful an influence it has in controlling inflammatory action, and that the inflammation in acute hydrocephalus often leaves behind it traces showing that it was of the adhesive kind, I should not omit giving mercury; but at the same time (as I stated when upon the subject of encephalitis) I should not give it with the direct object of affecting the gums, of producing ptyalism. I believe the evidence respecting the efficacy of mercury carried to salivation in acute hydrocephalus is this:—that some few very desperate cases have got well, the improvement commencing at the time when the mercurial influence on the system was becoming apparent; and that in other cases, the occurrence of salivation has been followed by no alleviation of the symptoms, but the disease has run on, unchecked, to its fatal termination. But the truth is that it is a very difficult matter to salivate a child; there is a great reluctance in the system, at the earlier periods of life, to take on the specific mercurial action; and the disinclination seems peculiarly strong during the presence of this disease; and the younger the child, the more difficult is it to affect the gums. Perhaps this may be considered fortunate; for when salivation does take place in these little patients, it sometimes proceeds to an alarming extent. Dr. John Clarke, who employed calomel largely in a variety of diseases, never saw more than three instances in which salivation was produced in children under three years of age.

If you are desirous of taking the chance of the specific influence of mercury doing good, you had better give calomel as a part of the purgative plan, and rub in some of the mercurial ointment; you had better do this than lock up the child's bowels by combining opium with the calomel; not to mention the injurious effects of opium in young children in general, and in the early period of head affections in particular. The calomel should be given steadily, in full and equal doses, at equal intervals. Green evacuations from the bowels, resembling wet tea-leaves or chopped spinach, usually follow its continued administration: and this appearance (like the rising of the gums in adults) is generally regarded as a proof that the influence of the mineral is felt by the constitution, and that it is doing all the good of which it is capable.

Of blisters I may repeat the substance of what I stated when we were considering encephalitis. I should abstain from them

adults at the commencement of the disease. Even when applied at a distance from the head, they are apt to prove a source of hurtful irritation in these young and susceptible subjects. But in the second stage of the malady, I believe blisters are often of good service. They may be applied to the nape of the neck, or to the head: and several may be applied in succession; or the ulcerated surface may be kept open by the help of irritating ointment, such as the unguentum cantharidis, or the ceratum sabinæ.

These are the main remedies to which we trust in the treatment of acute hydrocephalus: bleeding, purgatives, cold, in the outset; mercury and blisters, of more equivocal efficacy than the former, in the more advanced stages of the disease. When there is much irritability towards the decline of the disorder, or in its latest period, opiates may cautiously be tried; they sometimes have appeared to be extremely beneficial: two or three grains of Dover's powder is a very eligible form of opiate in such cases.

I do not feel called upon to say any thing, in addition to what I stated in a former lecture, about other remedies that have been proposed in acute hydrocephalus; digitalis, colchicum, squills, antimony. I have told you the remedies which *I* believe to be the best; and which will save the patient, when judiciously used, if the case be within the compass of our cure: and you will do well to learn how to manage these powerful means. I am confident you will find *that* more to your purpose then trying now this and now the other remedy because it is new, or because some persons tell you they have been wonderfully successful with it.

Let me say a word in reference to the *prevention* of this disease: concerning which your advice will be sure to be asked again and again. In families, in which acute hydrocephalus has occurred, or that shew decided marks of the scrofulous diathesis, the earliest attention should be paid to any deviation from the healthy condition of any of the functions. Children in such families should be kept upon a nourishing but light and unstimulating diet; consisting of well-dressed vegetables, farinaceous substances, and a moderate proportion of animal food. Particular care should be taken to keep the bowels regular; not that weakening purges should be given, but the bowels should be fairly relieved at least once every day. Any disturbance of the digestive organs should be immediately corrected; by antacids, laxatives, change of diet, and sometimes by mercurials, as the hydrargyrum cum cretâ. Such children should also, if possible, be brought up in the country, and freely exposed to mild and dry air; and in winter great care should be taken to have them

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the back of the head, does not preclude cold lotions to the forehead. It will be necessary, so long as the application appears grateful to the patient, to replenish the cushion from time to time with cold water.—T. W.

sufficiently clothed. During the hazardous period of dentition, the state of the teeth and gums must be sedulously attended to. There is good reason for believing that a seton or an issue in the neck or arm has been very serviceable in warding off and preventing attacks of the disease. Dr. Cheyne mentions some striking instances of the good effect of establishing an artificial irritation at some distance from the brain, when there has been a disposition to disease in that organ.

There is another caution, too, which you will often find reason for suggesting: and that is, not to press or encourage the development of the mental faculties in children who are quick and intelligent beyond their years. Parents are apt to be proud of the early acquirements of their little ones: they are not aware that such precocity of the mind implies danger to the health of the body; and they provide them with instructors, and to a certain extent abridge their hours of exercise and amusement, that they may do justice to their cleverness. But it is our duty to admonish them of the risks they are thus running: and to advise them to think only, for the present, of corroborating the corporeal strength of the child; and to avoid over cultivation of his intellect until this dangerous period of his existence is got over.

Spurious hydrocephalus.—There is still one point remaining, and one of great importance, in relation to the acute hydrocephalus of children. I told you in the last lecture, that the diagnosis was generally not difficult; and I have told you in the present lecture, that it will be your duty to act sometimes upon a conjectural diagnosis, as if you *knew* the disease was present, or at hand, although, in truth, you only *suspected* it to be so. But there is a form of disorder very apt to be mistaken and treated for acute hydrocephalus, and one which may be rendered fatal, if the *remedies* of acute hydrocephalus be applied to it. Encephalitis, whether it occur in the child or in the adult, has its spurious double. As in morals, every virtue has its corresponding vice, which apes its actions and assumes its garb, so is it also with many opposite bodily disorders; and it is of great moment that we should be capable of discerning the essential difference of character that lurks beneath external similarity of feature. It is a most curious, but unquestionable fact, that *anæmia* of the brain, a diminution of its natural supply of red blood, will produce symptoms very much resembling those which result from the diametrically opposite condition. If you pay no regard to the state of the general circulation, as indicated by the temperature and by the pulse, you will find the actual symptoms of syncope, and of apoplectic fulness, to be identically the same. When a human being bleeds to death,—as many do from wounds, from uterine hæmorrhage, and so on,—what do we see? Why the patients may have nervous delirium, become convulsed, and then insensible, with a wide and fixed pupil. The outward visible signs of concussion and of compression of the brain are very much alike. The vulgar always confound them, and are clamorous that a vein should be opened: a measure which would be proper and useful in the one case, but most mischievous in the other. It is the same with the functions of other parts: we have palpitation of the heart when that organ is insufficiently supplied with blood; palpitation when it is over supplied: dyspnœa, or hurried breathing, when the lungs are congested; hurried breathing when blood does not arrive in them plentifully enough. You must see that the importance of distinguishing between the causes of these analogous phenomena is immense. Several authors in modern times have noticed the condition of the brain to which I now wish you to attend: Dr. Abercrombie, Dr. Marshall Hall, and the late Dr. Gooch. Their observations were made and published each, I believe, independently of the other's. Dr. Gooch's paper is entitled, "Of some Symptoms in Children erroneously attributed to Congestion of the Brain." His description of the state in question is very graphic; it is chiefly indicated by heaviness of the head, and drowsiness. The age of the little patients whom he had seen so affected was from a few months to two or three years; they were generally small of their age, and of delicate health, or had been exposed to debilitating causes. Dr. M. Hall has found this condition to succeed the diarrhœa often produced by weaning; or the ill-timed administration of purgative medicine; or the application of leeches for some previous complaint. The physician finds the child lying on its nurse's lap, unable or unwilling to raise its head; half asleep; one moment opening its eyes, and the next closing them again, with a remarkable expression of languor. The tongue is slightly white, the skin is not hot, at times the nurse remarks that it is colder than natural; in some instances there is at times a slight and transient flush. In all the cases that Dr. Gooch saw, the bowels had been already disturbed by purgatives; the symptoms had invariably been attributed to congestion of the brain; and the remedies employed had been leeches and cold lotions to the head, and purgatives—especially calomel. Under this treatment they had gradually got worse, the languor had increased, the pulse become quicker and weaker, and at the end of a certain number of days the little patients had died: in two instances he had known, during the last few hours, coma to come on, stertorous breathing, and dilated and motionless pupils. Dr. M. Hall describes a precisely similar set of symptoms.

I will take one of Dr. Gooch's cases in illustration, and give it you in his own words. "I was going out of town (he says) one afternoon, when a gentleman drove up to my door in a coach, and entreated me to go and see his child, which he said had something the matter with its head, and that the medical attendant of the family was in the house, and just going to apply leeches. I went with him immediately, and when I entered the nursery I found a child ten months old, lying in its nurse's lap, exactly in the state which I have already described; the same unwillingness to hold its head up, the same drowsiness, languor, absence of heat and all symptoms of fever. The child was not small of its age, and had not been weak; but it had been *weaned* about two months, since which it had never thriven. The leeches had not been put on. I took the medical gentleman into another room, related the foregoing case (*i. e.* a case in which a child had been leeched out of its life), and several similar to it, which had been treated in the same way, and had *died* in the same way. Then I related to him a similar case which I had seen in the neighbouring square, which had been treated with ammonia and decoction of bark, and good diet, and which had recovered; not slowly, so as to make it doubtful whether the treatment was the cause of the recovery, but so speedily that at the third visit I took my leave. He consented to postpone the leeches, and to pursue the plan which I recommended. We directed the gruel diet to be left off, and no other to be given than ass's milk, of which the child was to take at least a pint and a half, and at most a quart, in the twenty-four hours. Its medicine was ten minims of the aromatic spirit of ammonia in a small draught every four hours. When we met the next day the appearance of the child proved that our measures had been right; the nurse was walking about the nursery with it upright in her arms. It looked happy and laughing. The same plan was continued another day; the next day it was so well that I took my leave, merely directing the ammonia to be given at longer intervals, and thus gradually withdrawn; the ass's milk to be continued, which kept the bowels sufficiently open without aperient medicine." This case contains both a picture of the morbid state, and a summary account of the treatment it requires. Instead of the sal volatile, you may occasionally substitute with advantage from five to ten drops of brandy mixed with arrowroot. You are to restrain diarrhoea if it exists; give the child plain nourishing diet—there is none so good for it as that furnished from a mother's breast; keep its extremities warm with flannel; and if the season permit, let a current of mild fresh air blow freely over it.

When the symptoms are more ambiguous, you will derive great assistance in judging of the true nature of the case, by tracing the manner in which it came on, and the causes to which it seems to be attributable: and in very young children—in respect to whom the question is most likely to arise—you may often determine between congestion or exhaustion, between fulness or emptiness, by a very simple and easy test, which is not adverted to, as far as I remember, by any of the three writers whom I have mentioned. I mean, by taking notice of the state of the unclosed fontanelle. If the symptoms proceed from plethora, or inflammation, or an approach to inflammation, you will find the surface of the fontanelle convex and prominent, and you may safely employ, and expect benefit from, depletion. If, on the other hand, the symptoms originate in emptiness and want of support, the surface of the fontanelle will be concave and depressed; and in that case leeches, or other evacuants, will do harm, and you must take to a better diet, ammonia, and so forth. It may be as well to remark, that in the unclosed state of the fontanelle, the observations formerly made respecting the peculiarity of the circulation in the brain, do not apply.

Chronic hydrocephalus. — All that has hitherto been said has relation to *acute* hydrocephalus, which is an *inflammation*. I have next to speak of *chronic* hydrocephalus, which is a *dropsy*. From some cause, not well understood, a watery fluid collects within the skull, most commonly in the ventricles of the brain; and this occurring at the earlier periods of life, before the whole of the brain case has become solid, the containing parts yield to the increasing pressure, and the size of the head is augmented in various degrees; at the same time the cerebral functions are more or less deranged. This dropsy of the cranial cavity often commences before the period of intra-uterine life is completed, and the head of the fœtus becomes so large, that it cannot pass with safety into the world. Accordingly, many of these infants perish at the moment when their separate existence commences:—*nascentes moriuntur.* The pressure of the maternal pelvis is fatal to them; or the diseased head bursts; or is crushed by the accoucheur, to preserve the life of the mother. The skull is emptied of its contents, and the shell, if I may so call it, collapsing, passes through the natural outlets.

In many cases, however, the dropsical skull is expelled entire and unhurt, and the infant lives for a shorter or longer period. Sometimes the fluid does not begin to accumulate till after birth: in a few days, however, or after some weeks, or some months even, the head is perceived to enlarge with a rapidity quite disproportioned to the growth of the other parts of the body; and enlarging, it becomes misshapen also. The intervention of the membranous partitions called fontanelles and open sutures, between the ununited bones, allows the centrifugal pressure of the gradually accumulating water to modify the shape of the head. These membranous interspaces are unnaturally wide, and more numerous than in healthy children. Nevertheless the process of ossification goes on, but the bones are extremely thin. We see little islands of bone in seas (as it were) of membrane. By degrees, if the child survives, the proportion of membrane to bone becomes less and less, and at length the whole brain case is hard, and firmly closed up, its surface exhibiting an unusual number of joinings; there are many *ossa triquetra*.

Shape of the head.—In the meantime the direction and relations of the loose and yielding bones are altered. The os frontis is tilted forwards, so that the forehead, instead of slanting a little back, rises perpendicularly, or even juts out at its upper part, and overhangs the brow. The parietal bones bulge above towards the sides; the occiput is pushed back; and the head becomes long, broad, and deep, but flattened on the top. This, at least, is the most ordinary result. In some instances, however, the skull rises up in a conical form, like a sugar loaf. Not unfrequently the whole head is irregularly deformed, the two sides being unsymmetrical. Some of these rarer varieties of form are fixed and connate; others are owing, probably, to the kind of external pressure to which the head has been subjected.

While the *skull* may be rapidly enlarging, the bones of the *face* grow no faster than usual, perhaps not even so fast; and the disproportion that results gives an odd and peculiar physiognomy to the unhappy beings who are the subjects of this calamity. They have not the usual round or oval face of childhood. The forehead is broad, and the outline of the features tapers towards the chin. The visage is triangular. This great disproportion of size between the head and the face is diagnostic of the disease, and would serve to distinguish the skull of a hydrocephalic child from that of a giant. Heartless parents sometimes make a wretched profit of the deformity. A penny show of that kind existed very recently in the immediate vicinity of this College.

Anatomical characters.—When, after death, we explore the physical causes of these singular deviations from the natural figure and bulk of the cranium, we find that they proceed from the pressure of accumulated water: the complaint is manifestly a dropsy. But the situation of the water, and the condition of the brain itself, are subject to some curious varieties.

In a certain number of cases the brain is incompletely formed; deficient in some of its parts, or even altogether wanting. That portion of the cranial cavity which should contain the nervous pulp is filled up by a thin pellucid fluid. From some unknown cause, operating during the period of intra-uterine life, the progressive formation of the brain has been arrested. Marks of imperfect development are often visible in other parts of the same infants; they have a hare-lip, a bifid spine, or a fissured palate. It is in cases of this kind generally that the skull, unnaturally small perhaps, is pinched up into a conical peak, and has considerable thickness. They are obviously hopeless cases. To the physiologist they are subjects of much interest; for the practical physician they have none.

But in the majority of instances, when the infants survive their birth, the liquid is contained in the central cavities or ventricles of the brain, which are expanded into one. The convolutions are unfolded, and the cerebral matter is spread out into a hollow sphere; the irregularities of the surface have disappeared; the whole of the brain is smoothly extended in a thin layer, immediately beneath the bones and the membranes that connect them, and surrounds the inclosed liquid like a bag. Less frequently a different state of matters is seen. The liquid, instead of being included within the cerebral substance, lies in contact with the dura mater; while the brain, perfect in all its essential parts, is at the bottom of the cavity. The difference, however, is more apparent than real: the two conditions are substantially the same, only that, in the one case, the solid parts that lie around the ventricles gradually expand as the fluid slowly collects, much as an air-balloon dilates in proportion as gas is introduced within it; while in the other case the seams, or commissures (as they are technically called), that unite the hemispheres of the brain, give way, or are deficient, so that the ventricles and the general sac of the arachnoid form together one huge cavity; the hemispheres are turned aside, or folded back; the surfaces that naturally have a *central* aspect look *upwards*, and seem to constitute the summit of the cerebrum. This was the state of the parts within the immense skull from which the largest of the casts before you was taken. It belonged to a man named Cardinal, who died in Guy's Hospital, in 1825, and of whom Dr. Bright has given a very interesting account.

Symptoms.—Now some of the consequences of this distension of the brain and skull with watery fluid are simply mechanical. The child is top-heavy. His large unwieldly head is too much for the muscles of his head to sustain without fatigue; or even, when they are unassisted, to sustain at all. He walks gently and carefully, like a person balancing a heavy load upon his head; or he holds and partly carries his head with his hands, as a milkmaid steadies and supports a pail; or he reclines the weight of his burden upon the chair, or table, as he sits.

But far more important effects of the disease are those which relate to the three great functions of the brain. The child is soon found to be deaf, or blind; or palsied in one or more of its limbs; or idiotic; or all these. In other words, the special senses, the power of voluntary motion, and the mental faculties, are apt to be defective or perverted. Instances, however, do occur, in which these functions are, for some time, but little deranged. The greater number of those who are afflicted with dropsy of the brain either recover or die during their infancy. Still, a few survive, bearing their complaint to the adult period, and even to old age; and in some of these individuals who, with excessively large heads, have yet numbered many years of existence, the intellect and the senses, if not entire and perfect, have been sufficiently effective to answer the common wants and purposes of social life: the moral emotions strong, the feelings lively and correct, the memory tolerably retentive, the reasoning powers respectable. Dr. David Monro relates the case of a hydrocephalic girl, six years old, whose head measured two feet four inches in circumference. She is described by him as being "as lively and sensible as most of her age," and as "having a strong memory." Dr. Bright's patient, Cardinal, was nearly thirty years of age when he died. He was born in 1795. At the time of his birth, his head was only a little larger than natural; but it had a pulpy feel, as if it were almost destitute of bony matter. A fortnight afterwards, it began to increase rapidly; and when he was five years old, it was but little less, according to his mother's account, than when he died. He could not walk alone till he was nearly six, and then only on level ground; if he attempted to run, or to stoop, he fell down. He was sent to school when he was about six, and soon learned to read well and to write tolerably; but writing he soon gave up, because, as he was near-sighted, it obliged him to stoop, which he could not conveniently do. When a candle was held behind his head, or when his head happened to be between a spectator and the sun, the cranium appeared semi-transparent; and this was more or less the case till he was 14 years old. About the age of 23, epileptic fits began to occur; and after that, his health, which previously had been very good, failed somewhat. The ossification of the skull was not complete till two years before his death, the anterior fontanelle being the last part that closed. It has been mentioned that he was near-sighted; but he was very quick of hearing, his taste was perfect, and his digestion good. Dr. Bright states that his mental faculties were very fair, and his memory tolerable; but it was not retentive of dates. It was said that he was never known to dream. There was something childish and irritable in his manner, and he was easily provoked. He died, at last, of fever and diarrhœa. There were seven or eight pints of fluid within the cranium, in contact with the dura mater. On the base, or floor, of the skull lay the brain, with its hemispheres opened outwards, like the leaves of a book.

How comes it that the cerebral functions are thus sometimes fulfilled, or go on so well, when the machinery through which the mental powers are manifested—the instrument whereon and whereby the immaterial principle mysteriously operates—is so palpably and greatly deranged? How comes it that life, and especially the life of the mind, subsists at all? These questions open very interesting considerations. It would appear, from such cases as I have been referring to, that the curious arrangement and collocation of the several parts of the brain is rather a matter of convenient package than of necessary relation. The pulp which furnishes the medium of sense, and thought, and volition, is there, but it is disposed in an unusual shape. In neither of the two varieties of the malady that have been described as being compatible with prolonged existence, is there any necessary diminution of the cerebral mass. The brain itself, which forms a bag in the one case, and is split in halves in the other, has been found to weigh quite as much as a healthy brain at the same period of life. There has been no loss, therefore, of substance; the pressure has been gradual, and it has not been made to act injuriously by counter-pressure; no countervailing resistance has been afforded by the rigidity of the brain case: and thus the unopposed distending force neither causes absorption of the cerebral pulp on the one hand, nor, on the other, induces coma, or convulsions, or idiotcy, by its compression.

Most commonly, however, the mental

and voluntary functions are maimed or perverted; and these serious calamities make parents look at a large head in a young child with anxious solicitude. But you are aware, after what I stated on this subject in the last lecture, that the head *may* be extravagantly large without dropsy of the brain and without disease.

We have just seen, that while the brain itself is gradually unfolded, or its hemispheres are parted and turned aside by the liquid accumulating within the cranium, the functions of the organ may suffer but little, so long as the yielding brain-case permits the expansion or separation of the nervous substance, without inordinate pressure. But as soon as undue pressure begins to be exercised, then morbid symptoms arise, or the defects that have previously shewn themselves are aggravated. Hence that period of life becomes a perilous period, at which the skull, by the closure of its fontanelles and sutures, loses its capability of farther expansion. In some rare cases the closed sutures reopen under the augmenting pressure, and a respite is thus obtained. Dr. Baillie has recorded an instance in which this happened in a boy seven years old. A similar case is mentioned in Dr. Yeats' work on hydrocephalus. The patient was a boy nine years of age. The sutures of his skull separated again after having been united; and it was remarked that the teeth in the jagged edges, whereby the bones interlock with each other, were much fewer than is common. If this be always so when the sutures give way, it will serve to facilitate our understanding how such a phenomenon can take place. The skull may, however, go on expanding, although the sutures are permanently closed; there still being left intervals between the several points of ossification, which intervals are covered by membrane only. The beautiful preparation on the table, shewing this remarkable state of the cranium, I have borrowed for your inspection from Dr. Sweatman's museum.

Indeed, although I have spoken of this complaint as being especially a disease of childhood, it does occasionally commence long after the skull has become a complete case of bone. Enlargement of the head, in these cases, is impossible; but this circumstance, and the symptoms it is apt mechanically to produce, form the only differences between the disorder as it affects the child and the adult. In both cases disturbance of the cerebral functions arises, and at length convulsions and coma close the scene. In both a dropsical state of the ventricles of the brain constitutes, often, the only morbid change presented after death. A young and distinguished lawyer of my acquaintance had one or two attacks of rather sudden loss of consciousness, while engaged in the Court of Chancery; by degrees he became dull, stupid, forgetful, and, at length, insensible. In this condition he died. A large quantity of serous liquid was found distending the ventricles of his brain. No other alteration could be detected.

Dr. Baillie describes a case of chronic hydrocephalus that occurred in a man fifty years old. Six ounces of fluid were contained in the lateral ventricles. He had been paralytic on the right side of the body; and for eleven months before his death had lost the recollection of his own language, with the exception of four or five words; which he employed, with different intonations, to express his various wants.

The celebrated Dean of St. Patrick's afforded another instance of the same disease, attended with a similar interruption of the power of discoursing. The case, as related in Sir Walter Scott's *Life of Dr. Swift*, is curious, and contains an early suggestion of a piece of practice which in our own day has met with more favour. "A few days afterwards he sunk into a state of total insensibility, slept much, and could not without great difficulty be prevailed on to walk across the room. This was the effect of another bodily disease, his brain being loaded with water. Mr. Stevens, an ingenious clergyman of his chapter, pronounced this to be the case during his illness, and upon opening his head it appeared that he was not mistaken; but though he often entreated the Dean's friends and physicians that his skull might be trepanned, and the water discharged, no regard was paid to his opinion or advice."

He remained from October 1742, to October 1745, in a state of silence, with few and slight exceptions; and died in the 78th year of his age.

Gölis also mentions three instances in which this disease began in advanced life: two of the patients were above seventy years old; the third, who was a physician at Vienna, likewise died in the decline of life, having suffered under the disorder for ten years.

Now, what can we do in these wretched cases? Seldom much good, I am afraid. Yet something we must try, for parents will flatter themselves with hopes of a cure; and to say the truth, there have been, under judicious management, a sufficient number of recoveries to forbid our despairing in any case, and to make it incumbent upon us to employ carefully all those measures which have occasionally brought the disease to a favourable termination. Gölis even affirms, that of the cases which began after birth, and which he saw and treated early, he was fortunate enough to save the majority.

LECTURES
ON THE
FUNCTIONS OF THE NERVOUS SYSTEM.

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Lecture III.

Upon reviewing all the anatomical facts stated in the preceding lecture, it will be perceived that ganglionic masses, characterised by nuclei of grey matter, or of something equivalent to it, seem to be placed wherever it is desirable that impressions made upon the afferent nerves should excite motions; and that, as we rise in the scale, the number of centres possessing a diversity of functions increases. We have seen that sometimes these centres are, for the sake of convenient disposition, united into one mass; whilst, on the other hand, when the organs are multiplied, they also are repeated to a like extent, especially when it is desirable that they should be able to act independently of one another, as in the case of the suckers of the cuttle-fish. It may further be remarked, that, wherever the presence of special sensory organs, confined to one part of the body, gives to that part a predominance over the rest (the entrance to the alimentary canal being always in this neighbourhood), we find the ganglia with which they are connected possessing a special relation with all the rest, which these do not possess with each other. It is obvious that, where visual organs are developed, the impressions made upon these will determine the movements of the animal, more than those of any other kind; and it would seem to be chiefly owing to the information they communicate, that the cephalic ganglion has such an evident presiding influence over the rest, even when smaller than any of them. This is, however, more the case in animals whose movements are rapid, and in which, therefore, the perception of distant objects is more important—as in the insect tribes. Except in the Cephalopoda, the subservience of the nervous system to the nutritive functions of the Mollusca is so great, that it might almost be regarded as an appendage to the digestive organs, destined for the selection and prehension of aliment. But in the more active members of that class, it derives a more elevated character, from the development of organs of special sensation and of active locomotion.

A close relation may be traced between the predominance of the cephalic ganglion, and the evidence of the operations of sensation and volition, as manifested in the movements of the animal. So long as food is within its reach, we can scarcely regard the prehension of it as an act of any higher character than that of the infant when it applies its lips to the nipple of the mother; and this action is known (by observation of acephalous monsters, and by experiments on puppies, &c.) not to be dependent on the presence of a brain, and may, therefore, be regarded as not necessarily involving either sensation or volition, although, in the perfect state of the being, it is accompanied by the former. But, when the animal has to exercise its organs of special sensation, and to put its general locomotive apparatus into activity for the purpose of seeking its aliment, its operations must be regarded as of a higher order. Still, many of these may be considered instinctive; that is to say, not involving any reasoning powers, or any notion of *purpose*, on the part of the animal itself, but more analogous to those involuntary actions which result from the excitement of the emotions in man. We may take a well-known case in illustration—the ejectment of the contents of the ink-bag which takes place when the cuttle-fish is pursued. This has been represented by some as of a *voluntary* character, and as indicating a *design* on the part of the animal to conceal itself from its pursuers. But such a supposition involves an amount of reasoning power on the part of the animal which we can scarcely attribute to it; and, if the action were not performed to as much advantage the *first* time as it might be on a subsequent occasion, it would obviously be of little use. It may rather be likened to the expulsion of the contents of the rectum and bladder under the emotion of fear, which many of the human species (in their schoolboy days especially) know by experience to result from an impulse uncontrollable by the will. This view of its character is strengthened by the fact that the secretion of *ink* is really analogous to that of *urine*.

We shall now inquire how far these doctrines are applicable to the *Articulata*. The animals composing this group all present, in a more or less evident degree, a division into segments, which have an obvious tendency to resemble one another, as in the Radiata. In the higher classes, however, this segmentation is obscured by the modifications which cause the different segments to assume dissimilar forms and possess distinct functions; whilst, in the lowest tribes, the soft texture of the integument, as well as of the rest of the body, prevents its manifestation. In the intermediate groups, however, as in the *Myriapoda*, it is very apparent; and here we find a nearly perfect equality among all the segments, with the exception of the one which forms the head. In such, the nervous system is merely a repetition of similar parts, disposed, not in a circle as in the

Radiata, but in a continuous line. The most anterior of the ganglia, however, has an evident predominating influence over the rest, for the reason formerly specified; and this influence will be found, by comparison in other classes, to diminish with the loss, and to increase with the development of the faculties of special sensation which have their seat there. The locomotive powers are just as predominant in the Articulated series as are the nutritive functions among the Mollusca. Accordingly, we find the development of the nervous system to bear a special reference to them; and the sensori-motor divisions of it can be more distinctly separated from the portion which ministers to the organic functions.

Passing over the inferior groups, as affording no data of importance for physiological conclusions, we shall examine the nervous system as it exists in the *Myriapoda*. Here we observe a chain of ganglia running from one extremity of the body to the other, along the ventral surface, and in the median line. These ganglia are connected by trunks, which, on close examination, are seen to consist of two cords closely united. (In some of the Isopod Crustacea, in which the type of the nervous system is precisely the same, not only the longitudinal cords, but the ganglia upon them, are double through their whole length, being connected by a transverse cord in each segment.) The cephalic ganglion is bilobed; evidently consisting of two masses, which are united on the median line. These receive the nerves of the eyes and antennæ; but they are still of small size, in accordance with the low development of the sensory organs. The ganglia of the longitudinal cord are nearly equal, from one extremity of the body to the other. Each sends off nerves to its respective segment; and the branches proceeding from the different ganglia have little communication with each other. The highest of them, situated just beneath the œsophagus, is connected with the cephalic masses by two cords, between which that canal passes, encircled, as it were, in a ring. When we examine one of the ganglia of the ventral cord, and the nerves which seem to originate from it, we find that each nerve has three series of roots; one of which terminates, as in the other cases, in the grey matter of the ganglion itself; another interlaces with those of the opposite side; whilst the third is *continuous* with a *fibrous* portion of the cord, which may be traced uninterruptedly to the cephalic ganglia. When the structure of the cord itself is analysed, it is seen that the fibrous tract or column is throughout distinct from that which contains the ganglionic enlargements; and that it does not contribute towards the formation of these, but passes over them (as was first observed by Mr. Newport,) like the analogous trunk in the arms of the cuttle-fish.

After what has been said of the offices which the ganglia perform in the Mollusca, and of the relation which they bear to the cephalic mass, we shall have little difficulty in understanding the character of the nervous apparatus in the Articulata, if our minds be unoccupied by any preconceived notion. When we examine into the actions of the ventral cord, we perceive that those of all its ganglia are similar to each other; being related only to the movements of their respective segments, and of the members which belong to them. In fact, these ganglia may be regarded as so many repetitions of the *pedal* or locomotive ganglion of the Mollusca. It is easily proved that the movements of each pair of feet may be produced by that ganglion alone with which it is connected; since a single segment, isolated from the rest, will continue to perform these movements for some time, under favourable circumstances. If an earthworm be cut in two, whilst crawling, each portion will continue to advance, though the anterior one only will permanently preserve its vitality. If a centipede be divided into several portions under the same circumstances, each will execute motions of progression for some time. But it is evident that these must be placed, in the living animal, under some general control, by which the consentaneousness of action that is essential to regular locomotion may be produced. This is easily proved by experiment. If in a Mantis, for example, the nervous cord be divided between the first and second thoracic ganglia, so as to isolate the ganglionic centres of the posterior legs, the limbs will continue to move energetically, but not with a combined object, and no progression will take place. We can scarcely account for the exercise of this general control, otherwise than by attributing it to the fibrous tract, which connects each of the nervous trunks immediately with the cephalic ganglia, as in the Mollusca; and this must, therefore, conduct to the sensorium (whose seat is probably in these) the impressions which there produce sensations, and convey downwards the locomotive impulse; whilst the ganglion of each segment, with the filaments proceeding from its nucleus, will form the circle necessary for the simply reflex actions of its members.

The independence of the segments, as far as their reflex actions are concerned, and their common subordination to one presiding centre of the will, are fully explained on this supposition. It is also quite conformable to the analogy both of the Mollusca and of Vertebrata. We have seen that, in the former, where the ganglia are more isolated

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[illegible] from one another and from the presiding centre, each appears to be the centre of simply reflex actions occurring in the organ with which it is connected; but that a part of the nervous fibres which seem to enter it really pass on to communicate with the cephalic mass, where alone, it may be surmised, sensations can be felt, and voluntary impulses excited. And on the other hand, in Vertebrata, we find the ganglionic or mixed portion of the spinal cord, and the simply fibrous tracts, performing functions respectively analogous; for, when any segment is isolated from the rest, reflex actions may be excited through it, in the production of which the white columns can scarcely participate, being structurally distinct from each other, and from the ganglionic portion of the cord, and continuous only with the fibrous portion of the brain; whilst pathology supplies us with numerous instances of the converse proposition, namely, the destruction of the ganglionic portion, without the functions of the parts below being impaired,—their ganglionic portion being segmentally independent, and their communication with the brain being maintained by a continuity of white or fibrous structure.

The number and variety of the reflex actions which take place in the Articulata after decapitation, is very remarkable; and they seem to have a consentaneousness proportioned to the closeness of the relation between the nervous centres in the respective species. Thus, in the Scolopendra, we find the ganglia of each segment distinct, but connected by a commissural trunk. Here an impression made *equally* upon the afferent nerves of *all* the ganglia, will produce a consentaneous action. Thus, if the respiratory orifices on one side of a decapitated Scolopendra be exposed to an irritating vapour, the body will be immediately flexed in the opposite direction; and if the stigmata of the other side be then similarly irritated, a contrary movement will occur. But different actions may be excited in different parts of the cord by the proper disposition of the irritating cause. In the higher classes, however, where the ganglia of the locomotive organs are much concentrated, the same irritation will produce consentaneous motions in several members, similar to those which the unmutilated animal performs. The *Mantis religiosa*, for example, ordinarily places itself in a very curious position, especially when threatened or attacked, resting upon its two posterior pair of legs, and elevating its thorax and the anterior pair, which are armed with powerful claws. If the anterior segment of the thorax, with its attached members, be removed, the posterior part of the body will still remain balanced upon the four legs which belong to it, resisting any attempts to overthrow it; recovering its position when disturbed, and performing the same agitated movements of the wings and elytra, as when the unmutilated animal is irritated. On the other hand, the detached portion of the thorax, which contains a ganglion, will, when separated from the head, set in motion its long arms, and impress their hooks on the fingers which hold it. These facts prove unequivocally that the instinctive movements of these parts, which are performed in direct respondence to external impressions, require only for their stimulation the ganglionic centre with which the nerves that excite them are immediately connected. Another instance, related by Burmeister, is still more satisfactory in regard to the manner in which these movements are excited. A specimen of the *Dytiscus sulcatus*, from which the cephalic ganglia had been removed, and which remained in a motionless condition whilst lying with its abdomen on a dry hard surface, executed the usual swimming motions, when cast into water, with great energy and rapidity, striking all its comrades to one side by its violence, and persisting in this for half an hour.

Without describing in minute detail the forms which the nervous system presents in the higher classes of Articulata, or tracing that interesting series of changes which it undergoes during the metamorphosis of in-

FIG. 7.

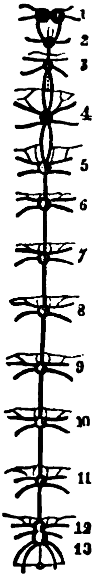

FIG. 7.—Nervous system of Larva of Sphinx Ligustri; after Newport.

sects, a few particulars may be stated on these subjects, as having an immediate bearing on our present object. The nervous system of the Larva, like that of the Annelida, or Myriapoda, presents an obvious relation with the means and extent of locomotion possessed by the animal. Each segment (in general at least) possesses a pair of legs; and with each is associated a *pedal* ganglion. None of the movements of the animal (in those tribes which undergo a complete metamorphosis, to which this description more particularly applies,) are very energetic; simple and slow progression is all for which its structure is adapted; and the uniformity in the actions of its legs would render it easy to combine them at the will of the animal, even though their respective centres remain so much isolated from one another. But, in the perfect insect, the whole locomotive apparatus is concentrated in the thorax. The six legs (which are now all that remain), and the single or double pairs of wings, are all developed from its three segments; and a much greater variety of action is required, as well as more complete consentaneousness, on account of the increased number and velocity of the movements of the animal. We accordingly find that the ganglionic matter of the ventral cord of perfect insects is more or less concentrated in the thoracic region; whilst the ganglia of the abdomen are usually few and small; the nerves to its segments, however, being given off as before at regular intervals. In some of the Coleoptera and Hemiptera, the concentration of the thoracic ganglia takes place to such an extent, that they seem to form but one mass; and this is the case also among some of the Crustacea, the different forms of whose nervous system are exactly parallel to those of their congeners among the inhabitants of the air and land. The nerves which supply the wings of insects are found, in all stages of the development of these organs, to have a double origin. One root arises from the fibrous tract alone; whilst the other takes its origin from both tracts at the point of enlargement. When the ganglionic centres which supply the anterior and posterior pairs of wings remain distinct, there is a curious plexiform arrangement of their nerves, more or less intricate, according as the wings are destined to act with greater or less consentaneous energy, and absent when the anterior pair serve only as elytra, and do not assist in flight. This would remind us of the circular filament which was seen to connect the nerves of the arms in the naked Cephalopoda. Besides these nerves, the wings are supplied from the respiratory system next to be described, from which scarcely any branches go to the legs. This will be readily understood, when it is considered that the wings are developed, as it were, out of an extension of the respiratory apparatus*, and that its actions are closely connected with these movements.

FIG. 8.

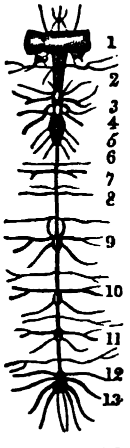

FIG. 8.—Nervous system of Imago of Sphinx Ligustri.

Hitherto we have spoken only of that division of the nervous system of the Articulata which may be regarded as corresponding with the sensory and locomotive ganglia of the Mollusca; namely, the cephalic, the pedal, and (in some instances) the palleal. We have next to inquire what we find corresponding with the branchial ganglion. It is to be recollected that the respiratory apparatus of insects is diffused throughout the whole body, so that its presiding system of nerves must be proportionally extended; and we are, therefore, prepared to find the *branchial* ganglion of the Mollusca repeated, like the pedal, in each segment. Besides the nervous trunks given off from the ventral cord at its ganglionic enlargement, we find, in most of the Articulated classes, a series of smaller

FIG. 9.

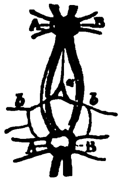

FIG. 9.—Portion of nervous cord in the thorax of the Pupa Sphinx. A, B, ganglia of the cord; the connecting trunks between which, being separated widely, show, *a*, the respiratory ganglion; *b*, *b*, its nerves.

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* See Principles of General and Comparative Physiology, p. 806.

nerves, given off at intermediate points, without any apparent swelling at the points of divergence. The connections of these are most distinctly observed in the perfect insect, whose respiratory system is developed more extensively than that of any other animal. It is seen, on a close examination of the ventral column, that a third tract exists on the superior or visceral aspect of the cord; and that these nerves are given off from minute ganglionic enlargements upon it. This tract seems to be quite unconnected along its whole course with the column upon which it lies. Its nerves, however, communicate with those of the sensori-motor system; but they have a separate distribution, being transmitted especially to the tracheæ, on the parietes of which they ramify minutely, and also to the muscles concerned in the respiratory movements. The latter, however, being a part of the general locomotive apparatus, are also supplied from the principal ganglionic column. These transverse or superadded nerves do *not* supply the muscles which open and close the stigmatic orifices of the tracheæ; and this might be thought inconsistent with the supposition that they are especially concerned in the respiratory function, if it were not recollected that the closure of the stigmata is an action more connected with the voluntary movements of the animal than with the mechanism of its aeration; it being in this manner that it prepares itself for flight, or for any other powerful exertion. These superadded nerves, then, which are evidently analogous to those of the gills and siphonic apparatus in the Mollusca, may be regarded as corresponding with the pneumonic portion of the par vagum in Vertebrata—which is in like manner distributed on the air-passages, and with its associated motor nerves. In comparing the nervous system of Insects with that of the higher Mollusca, it will be seen that they differ more in the relative proportions, and in the arrangement of their parts, than in their absolute character. In both there is a cephalic division of the ganglionic centres, in which sensibility and voluntary power appear to reside more particularly, if not entirely. In both there is a division specially appropriated to the locomotive apparatus, differing only in the multiplication of the centres in Insects, conformably with the arrangement of the members they supply; and sometimes, as we have seen, consolidated to nearly the same degree as in the Cephalopoda. In both, also, we find a division appropriated to the respiratory apparatus, in which there is a corresponding multiplicity of centres in the Articulata, in harmony with the universal distribution of their tracheal system. And in both, as we shall now see, there is a separate system of nerves, distributed to the alimentary apparatus, and supplying the organs of mastication (with the salivary glands), deglutition, and digestion.

Of the *stomato-gastric* system, some traces may be found in nearly all the Articulated classes. Thus, in the leech, we find a minute ganglion existing at the base of each of the three teeth which form the mouth; these ganglia are connected together, and, to the cephalic, by slender filaments; and they seem also to be in connection with other filaments, which may be traced on the alimentary canal. As a specimen of its highly developed form, we shall take that which is described in the *Gryllotalpa vulgaris* (common mole-cricket). Here we find it consisting of two divisions; one placed on the median line, which may hence be called the *median* system; the other running on each side at some little distance, and hence called the *lateral* system. The median system appears to originate in a small ganglion,

FIG. 10.

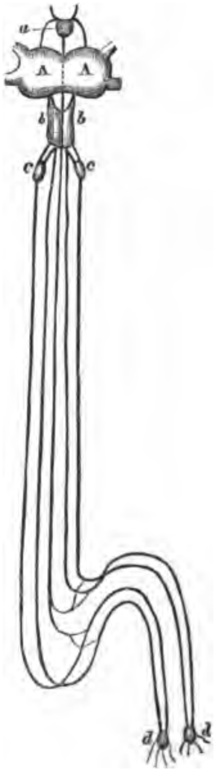

FIG. 10.—Stomato-gastric system of *Gryllotalpa*. A, A, cephalic ganglia; *a*, anterior ganglion; *b*, *b*, and *c*, *c*, posterior lateral ganglia; *d*, *d*, cœliac ganglia.

situated anteriorly and inferiorly to the cephalic mass, with which it communicates by a connecting branch on each side. From this ganglion, nerves proceed to the walls of the buccal cavity, the mandibles, &c. Its principal trunk, however, (the *recurrent* of authors) is sent backwards beneath the pharynx; and on this a slight ganglionic enlargement is seen, where the connecting branches are given off, which unite it with the lateral system. Its ramifications are distributed along the œsophageal tube and dorsal vessel; whilst the trunk passes downwards to the stomach, where its branches inosculate with those supplied by the lateral system, and seem to assist in forming a pair of small ganglia, from which most of the visceral nerves radiate. The ganglia of the lateral system are two on each side, lying behind and beneath the cephalic masses. The anterior pair are the largest, and meet on the median line, just behind the cephalic ganglia, with which they communicate. Posteriorly to these lie the second pair, which are in connection with them. Two cords pass backwards on each side, one derived from the anterior, the other from the posterior, of these ganglia. They run along the sides of the œsophagus and dorsal vessel; and, after inosculating with the branches of the central system, enter the two cœliac ganglia, from which branches radiate to the abdominal viscera.

FIG. 11.

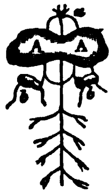

FIG. 11.—Stomato-gastric system in the Sphinx. A, A, cephalic ganglia; *a*, anterior median ganglion; *b, b*, lateral ganglia.

This system of ganglia and nerves has an evident affinity with the *sympathetic* system of Vertebrata, as well as with some parts of the cerebro-spinal system, more especially with the par vagum. It is to be remembered that the pneumogastric nerve of Vertebrata is distributed to three separate systems—the respiratory, the circulating, and the digestive. As we know that the ultimate fibrils of nerves never anastomose, there can be no doubt that these branches might be separately traced backwards into their ganglionic centres; and they may thus be regarded as *functionally* three distinct nerves. There is no difficulty, then, in understanding that the respiratory system of insects and other Invertebrata may be analogous with the pneumonic portion of the par vagum, although it bears no relation with the cardiac and gastric divisions of the nerve. To these divisions the analogy of the recurrent nerve becomes sufficiently plain, when we look at its distribution upon the dorsal vessel, œsophagus, and stomach; but its commencement in the anterior ganglion, which also supplies the mouth and pharynx, might seem to place it on a different footing, until we have determined the true analogy of this last centre. It may be inferred from its situation, and from the distribution of its nerves, that this anterior is analogous both to the labial and pharyngeal ganglia of the higher Mollusca. These appear to form a division of the nervous system, by which the actions *immediately* concerned in the prehension of food are performed, almost as independently of the cephalic ganglia as are those of respiration. There would seem, however, a greater tendency towards the union of *these* centres with the œsophageal collar, than of those presiding over the respiratory function, which is more independent of the will; and accordingly we find the *labial* ganglia apparently united with the cephalic in most of the Gasteropoda, whilst the *pharyngeal* forms part of the subœsophageal mass in the Nautilus. The division of the nervous system of Vertebrata with which this stomato-gastric system corresponds, is a question of more apparent difficulty; but if we bring into comparison not only the highest but the lowest forms of the cerebro-spinal apparatus, the chief difficulties will be removed. The analogies drawn from the distribution of the nervous branches would lead us to infer that the *third* division of the fifth pair (including its sensory and motor origins) the glosso-pharyngeal, and the gastric portion of the par vagum, would most nearly represent it. Now, when the fifth pair is traced back to its true origin, it is found to be not a cerebral but a spinal nerve; and it is then seen to arise from the medulla oblongata, in such close approximation with the par vagum and glosso-pharyngeal, as to show that, if this portion of the nervous centres were isolated from the rest, the nerves which proceed from it would form, anatomically as well as functionally, a natural group. The fifth pair, like other spinal nerves, may act in a simply reflex character; although, in man, it is usually under the dominion of the will. In the lower animals we find these reflex actions bearing a much larger proportion to the voluntary, than in man; and even in him we not unfrequently meet with cases in which the functions of the cerebral hemispheres seem suspended, whilst those of the spinal cord are unimpaired; so that the prehension of food by the lips may take place without any effort of the will. This has been observed in acephalous fœtuses, in puppies from nerves, given off at intermediate points, without any apparent swelling at the points of divergence. The connections of these are most distinctly observed in the perfect insect, whose respiratory system is developed mo… extensively than that of any other … It is seen, on a close examinat… ventral column, that a third … the superior or visceral … and that these nerve… minute ganglionic … This tract seems … along its whole c… which it lies. … nicate with … system; b… bution, b… tracheæ … ramify … conc… The … ge… p…

… of the par vagum in Vertebrata … the branches which connect … whilst the cephalic ganglia bring these nerves more or less under the influence of the latter. The lateral ganglia seem more analogous to the centres of the sympathetic system in Vertebrata; especially in the connection of their branches with all the other systems of nerves; and in the share which their branches have in the formation of the cœliac ganglia. This view of the relative functions of these two divisions of the stomato-gastric system, is strengthened by the fact, that the connection between the sympathetic system of Fishes and the par vagum is much more intimate than in the higher Vertebrata; although, even in the latter, as will be hereafter shown, it is by no means so slight as it appears.

There is an interesting variety in the conformation of the median division of the stomato-gastric system in some Crustacea, which shows its tendency to approximate with that which may be regarded as the analogue of the cerebro-spinal axis. In the *Astacus fluviatilis*, (cray-fish), for example, we find no separate anterior ganglion existing; but it seems replaced by two small ganglionic enlargements of the cords or peduncles which unite the cephalic ganglia with the first thoracic. From these proceed the branches which supply the mouth and muscles of the jaw, as well as others that unite with a median branch proceeding from the cephalic ganglion to form the recurrent trunk, which is distributed upon the œsophagus and stomach, where it presents one or two minute ganglionic enlargements. It is evident that the small ganglia upon the peduncles of the cephalic mass correspond exactly with the division of the medulla oblongata, from which the fifth pair and the par vagum are given off; so that the analogy, which has been previously drawn, would seem by this structure to be fully confirmed.

From the foregoing details, regarding the nervous system of the Articulata, it would, therefore, appear that the inferences which were drawn from the examination of its character in the Mollusca are fully applicable to the physiological explanation of its structure in this division of the animal kingdom, and thus derive important confirmation from ratus, and suppl… been seen that tion (with … arrangement of the parts of and d… in Mollusca may be … pursued before that of … is entered upon; since the … variety in the disposition of the different … in that group, the isolation of their … centres, and the transposition and combination of these in so great a variety of ways, affords us the key to their real character, which may be effectually applied to the elucidation of the more complex apparatus of Articulata*.

Upon taking a general review of the facts which have been stated, and the inferences which have been erected upon them, we perceive that between the strictly sensorial functions of the nervous system, and those operations in which its *internuncial* character only is employed, a tolerably distinct line of demarcation may generally be drawn. We have hitherto viewed this apparatus under two aspects:—1. As the instrument of the mind, by which it acquires a knowledge of the external world through the medium of sensation, and operates upon it by an exercise of volition. 2. As the means by which various movements are excited in the bodily structure, which are immediately necessary to the performance of the organic functions, and to its protection from injury. To these actions the general term *instinctive* may be given; that term being understood to imply the performance of a motion, or series of motions, *in direct respondence* to external impressions, *without the intervention of the will*, without any designed adaptation to purpose on the part of the animal, and often without its consciousness being necessarily affected. The first of these objects appears to be answered, chiefly if not entirely, by the cephalic ganglia, and the nerves proceeding from them. The second is carried into effect by the ganglia connected with each organ, or series of organs, whose movements are thus excited. We have seen, that, however small is the bulk of the cephalic ganglia compared with the sum of the other masses, these send nerves to every part of the body supplied by the latter; for the purpose, it would seem, of controlling, harmonizing, or antagonizing their actions. These nerves proceed as connecting trunks from the cephalic ganglia to the other centres; and then divide into filaments, which unite with those proceeding from them to the several organs. Each organ, therefore, receives four sets of fibres; an afferent and efferent set, which connect it with the cerebral ganglia, and are the channels of sensation, and of the influence of the will; and an afferent and efferent set, which connect it with its own peculiar ganglion, and serve to convey the stimulus of impressions which produce motions by reflected influence. In proportion as the special sensory organs are developed, and the animal is less completely governed by *mere* instinct, we find the cerebral ganglia and system of nerves more predominant. We observe among the Articulata the greatest perfection of instinctive movements any where exhibited. In these movements there is a most remarkable adaptation of means to ends; as in the construction of habitations by various insects, and especially the social Hymenoptera. But few persons will agree that this adaptation is performed by the mind of the animal; since, on this supposition, every bee solves a problem which has afforded scope for the laborious inquiries of the acutest human mathematician. The adaptation is in the original construction of a nervous system, which should occasion particular movements to be performed under particular external conditions; and the constancy with which these are performed by different individuals of the same species, when placed in the same conditions, leads at once to the belief that they must be independent of any operations so variable as those of judgment and voluntary performance. On the other hand, in the Vertebrata, we find the purely instinctive movement forming a smaller proportion of the whole actions, and brought under a more complete subjection to the sensori-volitional system. This is evident from the greater variety which the actions exhibit; from the mode in which they are adapted to peculiar circumstances; from the degree in which they may be modified by education; and from various other indications of a superior kind of intelligence. At last, in man, those instinctive movements which are not immediately requisite (like those of respiration) for the maintenance of the organic functions, are placed under the control of the will. This is especially true of the locomotive organs, whose reflex actions are entirely guided by the will; and they are only distinguishable when, from peculiar states of the system, the influence of the brain is suspended.

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* The view given above of the comparative structure and offices of the nervous system in the Invertebrated animals, is chiefly abridged from the author's Prize Thesis on this subject, in which additional details will be found, as well as many other illustrative figures and references to authorities. He has there, also, discussed the physiological explanation usually given of the double nervous cord of the Articulata; and having shown that it is neither consistent with itself, nor capable of being applied to the other Invertebrata, he has deemed it unnecessary to complicate the present sketch by introducing it.

There is a *third* aspect, however, under which we are to consider the nervous system; and this becomes more important in the highest division of the animal kingdom, on which we are now about to dwell. We have hitherto spoken only of its influence on the contractile properties of the tissues to which it is distributed. It has, however, an important and direct connection with the purely organic functions of nutrition and secretion; and we shall see reason to regard it as the means, not only of placing the *animal* in relation with the external world, but of harmonizing and controlling the organic changes taking place in its own structure, and of bringing these under the influence of particular mental conditions. It is the opinion of many, that all the organic functions are *dependent* upon the innervation supplied to them by the system of nerves which has been termed *sympathetic* or *visceral*. It is incumbent, however, on those who uphold the necessity of this nervous power, to prove it definitively, since all analogy leads to an opposite conclusion. We may regard the capability of separating from the blood a peculiar secretion, as a peculiar property inherent in the glandular membrane, just as contractility is the inherent property of muscular fibre. As the peculiar arrangement of the excitable and contractile tissues in animals requires a nervous system to act as a conductor between them, and to blend their actions, so do the complicated organic functions of animals require to be harmonized and kept in sympathy with each other, by some mode of communication more direct and certain than that afforded by the circulating system, which is their bond of union in plants. We have seen, in the foregoing sketch, that the visceral system does not exist in a distinct form in the lower classes of Invertebrated animals; and also that the nervous system of these classes cannot, as a whole, be compared with it, although it may be regarded as containing some rudiments of it. As the divisions of this system become more evident, however, and the organic functions more complicated, some appearance of a separate sympathetic system presents itself, as in Insects and Cephalopoda; but this is never so distinct as in Vertebrata. Hence it may fairly be inferred that, as the sympathetic system is *not* developed in proportion to the predominant activity of the functions of organic life (which is so remarkable in the Mollusca when contrasted with the Articulata), but in proportion to the development of the higher divisions of the nervous system, its office is not to contribute to these functions any thing essential to their performance, but rather to exercise that general control over them which becomes necessary according as they are more independent of one another, and to bring them into relation with the system of animal life.

ON HIP DISEASE AND LUMBAR ABSCESS.

By Wm. Oliver Chalk, Esq.
Resident Surgeon to the Royal Sea-Bathing Infirmary, Margate.

[Continued from p. 891.]

(For the Medical Gazette.)

The difficulty of effecting a satisfactory diagnosis amongst children is often very great, especially as their fears are usually excited by the examination, which it is always necessary to conduct with the greatest attention, before we can determine whether the symptoms are those of lumbar or hip disease.

The case of Richard Bridge, æt. 6, is one in which I experienced this difficulty; and as it is interesting I will relate it. He was admitted as an out-door patient, July 26, 1836. He had been treated according to Mr. Scott's plan. On removing the bandages, plaster, &c. the nates appeared slightly flattened. He did not complain of any pain on pressure. Percussion over the trochanter, rotation, flexion, and extension, seemed to cause no inconvenience. He walked on crutches, but was able to do without them. His general health was delicate; the upper lip rather thickened; the tongue slightly furred; pulse quick and feeble; his appetite tolerably good. He complained of slight tenderness in the hepatic region. The symptoms commenced in the preceding April, when he was first observed to limp; but did not suffer much inconvenience in other respects.

As the case seemed to present no very urgent symptoms, I determined to try the effect of change of air and bathing. He began with the warm bath three times a week, and on July 30th commenced the use of the douche. He continued this plan up to Sept. 3rd, without any apparent change in his health or in the local affection. I then began an alterative treatment with mild doses of hyd. c. creta at bed-time, together with infusion of cinchona and iodide of potassa. This was preceded by the application of a few leeches, and a blister to the epigastrium. Under this plan his general health improved, his appetite increased, the tongue cleaned. These remedies were persevered in until October 15th, when I was suddenly called to see him. He was suffering great pain in the hip and knee, which was aggravated by any attempt at motion. The limb was everted, and lengthened to about two inches. Of this there could be no doubt, as the trochanter, knee, and ankle-joints, were considerably lower than those of the sound limb. The case continued to go on badly up to the time of his departure, in December following. By this time his sufferings had become intense: he lay with the limb extended, and the hand grasping the thigh just above the knee. His rest was broken; he slept at short intervals only, and awoke starting and screaming. Hectic fever was at its height, and the patient appeared to be fast sinking. He died, I believe, soon after his return home.

It seems to me highly probable that the timidity of the child, which was always great, must have induced him to conceal whatever suffering he endured, for it is hardly possible to suppose that there was none prior to the lengthening of the limb; yet the person who had charge of him said that he never complained. There can be little doubt that the sudden elongation of the limb was owing to the destruction of the ligamentum teres. The flattening of the nates which took place after this occurred was most remarkable, and it was rendered more so by its having been very slight before that time. As it is a matter of the greatest importance to determine the symptoms which characterise affections of the hip, especially at their commencement, I shall endeavour to point out those which appear to me most worthy of attention.

The patient at first experiences slight pains in the articulation, sometimes extending to the front of the thigh, during and after walking; these becoming more severe and continuous as the disease advances. He is apt at this time to stumble; gradually, limping ensues; and then the peculiar mode of resting the limb already spoken of, by throwing the weight of the body on the sound one, giving rise to the canting of the pelvis and flattening of the nates. If at this time percussion, rotation, flexion, and extension, be used, pain generally follows. I have always observed, that whenever flexion of the limb is attempted, it causes more suffering than any of the former means, except perhaps percussion. There is no alteration as yet in the state of the femur, and the great trochanter retains its natural situation and form. The patient is always easier when lying down, but the sleep is disturbed and broken by frequent startings. This arises from the pain excited by the endeavour to alter the position of the limb whilst in a state of unconsciousness, and it is one of the most distressing symptoms, both in the earlier and latter periods of morbus coxæ. In the second stage, we have either shortening or lengthening of the limb, and a hard circumscribed fulness of the nates*; but it must be acknowledged that the latter symptom is less frequent than the others. When, however, suppuration has taken place within the cotyloid cavity, and the matter has found an exit, this appearance is very common. It is at this time, and when the disease is far advanced, that pain in the knee is commonly present. It has been supposed by some that dislocation of the head of the femur on the dorsum ilii takes place through the action of the muscles when the cavity of the joint is destroyed. But that this cannot be the case, must be very apparent when we consider that the muscles themselves, and the soft parts generally, are by this time involved in the destruction.

I am inclined, for my own part, to believe, that at this stage the simple circumstance of the patient's moving himself in bed, or being moved by others, or some cause equally slight, may displace the femur from its situation. Mr. Stanley, in an interesting paper lately read at the Royal Medical and Chirurgical Society, gives instances of the head of the femur becoming dislocated, even when paralysis of the muscles existed. The two following cases are very interesting, chiefly from the circumstance of shortening of the limb without dislocation of the head of the femur. The first was that of Mary Anne Fraser, æt. 9, admitted May 13th, 1837, suffering under the following symptoms:—

Enlargement of the liver and consequent ascites, dyspnœa and constant cough, accompanied by muco-purulent expectoration; pulse quick and feeble, great thirst, loss of appetite, alvine excretions unhealthy. The left hip joint was diseased, the limb shortened and turned inwards. She lay with the knee flexed, resting it on the sound one. There was a hard circumscribed tumor immediately over the articulation, and two openings, one near the usual situation of the great trochanter, and another about the middle and external part of the thigh, through which was discharged a profuse and unhealthy pus. The parts were highly sensitive, and she suffered constant pain, which was dreadfully acute on pressure or motion. The state of the patient was such that I felt it was useless to make any particular examination of the parts. From the copious discharge and constant pain in the hip and knee, and the position of the limb, I was inclined to regard the case as one of lumbar origin, and of consecutive disease of the joint. (This supposition, however, it will be seen was erroneous.) It was evident that the local and general symptoms were too far advanced to admit of any hope of recovery or alleviation. She lingered on until the 22nd June following, on which day she died.

On examination, I found the cotyloid cavity enlarged, and in a state of gangrenous softening. The head of the femur was completely destroyed; its neck was bent at right angles with the great trochanter, so that the latter was considerably higher than natural, while the former descended, as it were, into the cotyloid cavity. The soft parts in the vicinity of the joint were entirely destroyed. The altered situation of the neck of the femur and the trochanter gave rise to the shortening observed during life. Strong pleuritic adhesions existed on the left side of the chest. Many of the bronchial tubes were ossified or in a semi-cartilaginous state, and choked up with muco-purulent fluid, such as had been expectorated during life. There were several small ossific deposits in the parenchyma of the lungs. The pericardium contained about 4 ounces of fluid; the quantity that existed in the abdomen was not large. The liver was enlarged and indurated; the gall-bladder small, and containing little bile; the spleen was small and indurated, as was likewise the pancreas. Abscess had formed in the pelvis of

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* It is necessary to pay particular attention to this latter point, for, as will be shown hereafter, fulness of the nates commonly ensues when pus (following the course of the psoas muscle) insinuates itself among the interspaces of the muscles attached to the joint—thus giving rise to a soft fluctuating swelling.

Date.	Males.												Females.											
	Years of Age.											Total each Year.	Years of Age.											Total each Year.
	1 to 5	5—10	10—15	15—20	20—25	25—30	30—35	35—40	40—45	45—50	50—55		1 to 5	5—10	10—15	15—20	20—25	25—30	30—35	35—40	40—45	45—50	50—55	
MORBUS COXÆ.																								
1827 ...	0	7	7	7	0	1	0	0	0	0	0	22	1	3	3	2	5	2	0	0	0	0	0	16
1828 ...	0	7	6	1	4	2	0	1	0	0	0	21	0	3	2	2	0	2	1	1	0	0	0	11
1829 ...	1	12	4	6	4	3	1	1	0	1	0	33	0	3	2	2	1	3	1	0	0	0	0	12
1830 ...	1	10	4	6	1	1	1	1	0	0	0	25	0	6	2	5	3	5	0	0	0	0	0	21
1831 ...	2	3	4	0	1	0	0	0	0	0	0	10	1	3	0	2	1	3	1	0	0	0	0	11
1832 ...	1	8	1	3	1	0	0	1	0	0	0	15	0	7	3	2	5	1	1	0	0	1	0	20
Total ...	5	47	26	23	11	7	2	4	0	1	0	126	2	25	12	15	15	16	4	1	0	1	0	91
1833 ...	1	3	4	2	0	1	1	1	1	0	0	14	0	4	1	1	1	4	2	0	0	0	0	13
1834 ...	0	3	1	2	0	0	1	0	0	0	1	8	0	4	0	0	0	0	0	0	1	0	0	5
1835 ...	0	1	0	0	0	0	0	0	0	0	0	1	0	2	0	1	0	2	0	0	0	0	0	5
1836 ...	0	1	1	2	1	2	1	0	0	0	1	9	0	2	0	0	0	0	0	0	0	0	0	2
1837 ...	1	5	2	1	0	0	0	0	0	0	0	9	1	3	1	0	1	0	0	0	0	0	1	7
1838 ...	1	5	4	2	1	2	1	0	0	0	0	16	0	0	3	0	0	0	0	0	0	0	0	3
Total ...	3	18	12	9	2	5	4	1	1	0	2	57	1	15	5	2	2	6	2	0	1	0	1	35
1839 ...	3	5	2	1	0	0	0	0	0	0	0	11	0	1	2	0	0	0	0	0	0	0	0	3
1840 ...	0	3	0	1	1	0	1	0	0	0	0	6	0	1	0	1	0	0	0	0	0	0	0	2
Total ...	3	8	2	2	1	0	1	0	0	0	0	17	0	2	2	1	0	0	0	0	0	0	0	5
LUMBAR ABSCESS.																								
1827 ..	0	0	0	2	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	1	0	1
1828 ..	0	2	2	0	2	1	0	0	0	0	0	7	0	0	0	0	0	0	0	0	0	0	0	0
1829 ...	0	0	0	4	0	0	0	0	0	0	0	4	1	2	2	0	1	0	0	0	0	0	0	6
1830 ...	0	3	0	0	0	1	1	0	0	0	0	5	0	0	0	0	1	0	0	2	0	0	0	3
1831 ...	0	4	0	0	0	0	2	0	0	0	0	6	0	2	2	0	0	0	0	0	0	0	0	4
1832 ...	0	6	0	2	0	1	1	0	0	0	0	10	0	1	0	0	0	0	0	0	0	0	0	1
Total ...	0	15	2	8	2	3	4	0	0	0	0	34	1	5	4	0	2	0	0	2	0	1	0	15
1833 ...	0	6	4	3	1	2	1	0	0	0	0	17	0	0	1	3	1	0	0	0	0	0	0	5
1834 ...	0	3	4	2	0	2	1	0	0	0	0	12	1	3	1	0	2	0	1	0	0	0	0	8
1835 ...	0	2	4	2	1	4	1	0	0	0	0	14	2	0	1	1	1	0	1	1	0	0	0	7
1836 ...	1	8	9	2	1	1	0	0	0	0	0	22	3	5	3	2	2	1	0	0	0	0	0	16
1837 ...	0	2	1	2	1	0	0	0	1	0	0	7	0	2	2	2	1	1	0	0	0	0	0	8
1838 ...	1	5	2	1	1	2	0	0	0	0	0	12	0	3	2	3	3	1	0	0	0	0	0	12
Total ...	2	26	24	12	5	11	3	0	1	0	0	84	6	13	10	11	10	3	2	1	0	0	0	56
1839 ...	1	4	6	0	1	1	2	0	0	0	0	15	0	3	0	1	0	1	1	1	0	0	0	7
1840 ...	1	10	4	3	4	1	0	1	0	0	0	24	0	7	4	0	0	0	0	0	0	0	0	11
Total ...	2	14	10	3	5	2	2	1	0	0	0	39	0	10	4	1	0	1	1	1	0	0	0	18

DEATHS.

	MORBUS COXÆ.				LUMBAR ABSCESS.							
	Males.			Fem.	Males.					Females.		
1827 to 1840	5—10	10—15	15—20	5—10	5—10	10—15	15—20	30—35	40—45	5—10	10—15	15—20
	3	1	1	4	2	3	1	1	1	3	1	1

one of the kidneys. There were several small ossific depositions found in different parts of the abdomen.

Henry Eagle, æt. 6, admitted May 29th, 1838, suffering under morbus coxæ on the left side. The limb was shortened and turned inwards; hard and circumscribed fulness of the nates; does not complain of great pain. Percussion, however, over the articulation causes much suffering. He walks on crutches: his health is delicate. This boy was suddenly attacked with cerebral symptoms, which proved fatal five days after their commencement. He died July 26th.

The head of the femur was expanded in its socket by the deposition of tubercular matter in the cancellous structure of the bone. The neck of the femur and the trochanter were in a similar condition to that of Fraser's. The fulness of the nates was formed by the latter, and was situated rather higher up than in the other case. The capsular ligament was entire. On examining the head, the dura mater was found in some places adherent to the subjacent membrane. The substance of the brain was softened*. A small quantity of serum was effused at the base of the cranium. Strong pleuritic adhesions were observed on the right side of the chest; the left lung was studded with tubercles in their miliary form. The left ventricle of the heart was hypertrophied; the valves of the aorta were highly inflamed, as were also the mitral. The liver was indurated.

Explanation of the Table.—It will be seen, on referring to the table, that the cases of hip disease and lumbar abscess are each divided into three distinct parts; and that from the year 1833 to 1838 the number of hip cases had considerably decreased, whilst those of lumbar abscess, during the same period, had increased. As I formerly stated, that from the year 1827 to 1832 I considered the diagnosis of these respective diseases defective, I have subdivided the table, for the sake of comparison, into periods of six years: the remaining two years, 1839 and 1840, are therefore necessarily separated from it.

The inferences to be drawn from it are by no means devoid of interest; and it may fairly be considered conclusive on the point (concerning which authors have differed), that the male sex is most prone to these diseases. It will be seen, in both instances, that the males exceed the females. Morbus coxæ: males, 200; females, 131; making a total in favour of the former of 69. Lumbar abscess: males, 157; females, 89; giving a difference in favour of the males of 68*. On running the eye down the columns, it will be seen that children of both sexes suffer most from these disorders from the ages of five to ten. As these diseases are commonly the result of accident, it will follow as a matter of course that males, from being more exposed to the chances of casualties than females, must naturally suffer the most from them. I have never myself entertained any doubt on this subject; but, whatever may be the cause, the fact of males being more prone to these complaints than females, seems incontrovertible.

It will be seen, on reference to the table of deaths, that they are very few compared with the number admitted. From a calculation which I made four or five years since, the average stay of each in-door patient was a little more than twelve weeks, whilst that of the out-door scarcely exceeded ten. Many of the cases returned to the Infirmary during several successive seasons: I have purposely avoided a repetition of them, as they would not have increased the value, but merely added to the bulk, of the table.

STAMMERING.

To the Editor of the Medical Gazette.

Sir,

Several friends who have been aware of the success which, for the last six months, I have had, in curing stammering by surgical operation, have called my attention to paragraphs which have appeared in various newspapers on that subject, by which it is made to appear a still more recent discovery of others. About six months ago my attention was first drawn to this subject particularly, from several patients, who were severely affected with this malady, applying to me. Up to that time I had considered it to be a nervous affection, or an acquired habit, to be overcome by constitutional treatment, and particular attention in the use of the vocal organs. Amongst the number of patients who daily consulted me, I had found so many other complaints, generally considered incurable, to be amenable to surgical treatment, that the idea occurred to me that stammering might possibly arise from some physical defect, and be capable of being relieved by surgical operation; and I therefore directed my attention to the examination of these patients with this view. I very soon discovered that stammering was associated with a rigid state of the tongue in the majority of instances, which would naturally prevent the free and prompt action of the epiglottis required for permitting or restraining the passage of air through the glottis in the quantity necessary for a free and correct enunciation. The free division of the frænum appeared to me to be the most easy and natural mode of relieving this, and I operated accordingly. The effect of the operation was the instant removal of the complaint, and which, being so evident to a number of other patients who were present at the time, their report of this success induced others to apply to me, so that I have had two or three patients in succession undergoing the operation; and, of the scores of cases I have had, I think there have not been more than one or two which have not been benefited, whilst most have been entirely cured. Although division of the frænum will succeed in many cases, it will not in all, but may be rendered efficient in such cases by a farther division at the symphysis of the lower jaw. Other cases I found to depend on an obstruction to the free motion of the tongue, and especially to its permitting the free opening of the glottis; not from its being bridled down, but to its being pressed down by enlargement of the tonsils—a disease which I have known go so far as to cause not only stammering, but inability to articulate a single word distinctly, and at the same time producing deafness by pressing upon the eustachian tubes. All these defects I have found instantly to be removed by excision of the enlarged tonsil or tonsils. I had a most interesting case of this kind, which I operated upon on the 7th of October last, which remains perfectly well to this time. With the instrument I use for the purpose this can be done in patients of any age in a few seconds, with perfect safety and very little pain. Any other tumor, in such a situation, might produce similar effects, and therefore ought to be removed with the same view. It is quite delightful to witness the instant relief afforded by such operations. Patients who were not able to utter a single sentence distinctly, enabled to speak correctly, and with ease, instantaneously; and others, who were almost entirely deaf, instantly restored to the possession of the valuable sense of hearing. I was compelled to perform these operations sometimes surrounded by twenty or thirty patients, so that the accuracy of what is here stated is well known to hundreds who have witnessed them.

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* Cerebral disease is by no means uncommon in the latter stages of scrofulous disease, and the brain is generally in some part, or occasionally throughout the whole of its substance, in a state of ramollissement.

* The number of patients admitted from the year 1827 to 1840 are as follows: — Males, 4092; Females, 3662: making only a difference of 430 in favour of the males,—which, if divided among the various maladies from which they suffered, the number would still be too small to affect the statement.

I consider it an important fact to state that, in some cases from a distance, in which I had not an opportunity of watching the progress of the cure, and preventing the divided parts cicatrizing in their former contracted state, the stammering, which was completely removed by the operation, was about as bad as at first when the parts were so closed; but a redivision of these parts, and restoration of freedom to the tongue, had again the effect of immediately removing the malady; and by attention to guard against its closing in the contracted state, the cure has been permanent for the last five months, and therefore, it may be presumed, will now remain so for life. Stammering and coughing are occasionally associated with a relaxed or hypertrophied uvula, a portion of which I always excise in such cases. It may also arise from a relaxed state of the fauces, for which astringent and stimulant gargles, blisters, and constitutional treatment, may be required. When it is a purely nervous affection I know nothing new to recommend in such cases.

It may be difficult to assign the true cause, physiologically, of the complaint. My own opinion is, that the rigid state of the tongue prevents the epiglottis rising sufficiently to permit the free passage of air, and its acting with the promptness necessary to produce free and correct enunciation.

I understand it is given as Dieffenbach's opinion, that stammering is caused by the inability to touch the palate with the tongue. I have the highest respect for any opinion of that ingenious and dexterous surgeon, but candour compels me to say, that if such is really his opinion, I must differ from him on this point. I have all along been aware that in many cases the bridling of the tongue rendered it difficult or impossible for the stammerer to touch the palate with the tip of the tongue, when the jaws are separated to any extent; but this I consider as only a concomitant effect, not the cause of stammering, which, as already stated, I was, and am of opinion, arises from an obstruction to the free action of the epiglottis, and the effect resulting therefrom on the vocal cords and other parts of the vocal organs, including the free motion of the tongue itself. In proof of this I may instance the following facts:—One patient, on whom I operated to-day, two yesterday, and one two days before, had the power of pressing the tongue along the palate when the mouth was very much opened, and could protrude it about an inch and a half beyond the lips; circumstances to which I called the attention of several individuals present at the time. Two were instantly cured by the operation performed, and the other two were greatly improved. Being so familiar with such cases I was enabled to predict, before operating upon the latter cases, that the improvement would be only partial.

It is curious that Dieffenbach in Germany, Mr. Yearsley in London, myself in Manchester, and perhaps others elsewhere, should have been prosecuting the same subject, about the same time, in a somewhat similar manner, and each probably without any knowledge of what the other was doing. Could you, or any of your readers, favour me with information as to the date of their first operations? For my own part I can honestly say, I was not aware of any of their ideas or practice in this affection until within the last three weeks, although I had been practising it successfully for the last six months; and now, by the advice of some of my professional friends, I submit these remarks to the profession, with the hope that they may excite others to labour in the same interesting field of inquiry, and diffuse its blessings more extensively on mankind than could be effected were it confined to a few practitioners.—I am, sir,

Your obedient servant,
JAMES BRAID, M.R.C.S.

10, Piccadilly, Manchester,
March 8, 1841.

ANALYSES AND NOTICES OF BOOKS.

"L'Auteur se tue à alonger ce que le lecteur se tue à abréger."—D'ALEMBERT.

Magdalenism: an Inquiry into the Extent, Causes, and Consequences of Prostitution in Edinburgh. By WILLIAM TAIT, Surgeon, &c. Edinburgh, 1840. 8vo. pp. 268.

"MAN," quoth Aristotle, "is a mimetic animal;" and nowhere is the maxim of the Stagyrite more frequently exemplified than in literature. Let a man write a good book on any subject, and the press straightway groans with counterfeits. Historical novels, and mock Byrons, will immediately occur to every reader. Parent-Duchatelet, again, wrote a very remarkable treatise on prostitution as it exists in Paris; on which others must needs bring out books not remarkable, on the same social defect in other cities; *e. g.* the work before us. The author is unable to deal with his subject. No one, we believe, cries up prostitutes as saints and angels; but no man of sense inveighs against them in the style of a school-boy's theme, or would propose, like our author, that their oaths should be rejected in courts of justice. Nor is he happier in his statistical details; for if London contains only 8000 prostitutes, as he supposes at page 5, *note*, more than 5000 of them cannot die every year, as he imagines at page 247. At the same page he adopts Dr. Ryan's statement, that since the institution of Magdalen-asylums in London, four millions of women have been sacrificed by prostitution. As these asylums have not existed a century, this makes more than 40,000 a year,—a considerable number to be sacrificed out of a population of 8000; not to mention that this mortality is greater than the number of all the deaths among the men, women, and children of London, within the given period. But enough of this book.

Observations on the Religious Delusions of Insane Persons, and on the Practicability, Safety, and Expediency of imparting to them Christian Instruction, &c. By NATHANIEL BINGHAM, M.R.C.S. &c. London, 1841. 8vo. pp. 213.

MR. BINGHAM believes that religious instruction is not sufficiently attended to in madhouses; in some, divine service is not performed at all, and in others, with indifference. If we understand him aright, he would wish a zealous and animated preacher to be introduced into each asylum, who should endeavour to rouse the melancholic patients by his fervour, while he soothed those who were already in a state of excitement. He thinks that this would not tend to the increase of religious insanity—*judicent peritiores.* The author does not see why attendance on divine service should be voluntary in madhouses, while it is compulsory in private families and colleges. We can see one reason for it, among others. In the latter cases each individual is supposed to be of the same sect; not so in the former. Would any decent person compel Catholics, Baptists, Unitarians, and Swedenborgians, to be present at our Church of England service? Mr. Bingham's book is far too long, and is justly obnoxious to the quotation which adorns our analytic department.

MEDICAL GAZETTE.

Friday, March 19, 1841.

> "Licet omnibus, licet etiam mihi, dignitatem *Artis Medicæ* tueri; potestas modo veniendi in publicum sit, dicendi periculum non recuso."
>
> CICERO.

PROPOSED ALTERATIONS IN THE UNIVERSITY OF CAMBRIDGE.

IN our article of the 26th of February, we commented on the admirable work lately published by Dr. Peacock;* and we avowed our conviction that the great reform which he advocates must take place. We refer to the abolition of academical oaths—an improvement so imperiously demanded by common sense, as well as by higher considerations, that it is difficult to conjecture what any right-minded man could urge against its immediate adoption. All prospective and promissory oaths are in their nature dangerous, even when there is some chance of their being observed; but what shall be said of oaths taken to observe laws which, by universal consent, are obsolete?

Another part of the Dean of Ely's work, that in which he proposes alterations in the system of education, is, of course, more open to controversy; though even here his suggestions are always those of a sagacious and experienced man, and must be useful to those whom they do not entirely persuade. In the general tone of its examinations, the University of Cambridge appears to us to have steered the due course between extreme severity and indecent leniency,—the Scylla and Charybdis by which examinations are naturally endangered. If examinations are made so severe that only a handful of hard-working students can pass them, a university is no longer a place of national education: if so easy that every dullard can get through, its degrees sink in public esteem, until they differ from zero, to use a mathematical phrase, by a quantity less than any which can be assigned. Hence, to fix the minimum for a large body of students requires a nice appreciation of average abilities, and an accurate knowledge of the ordinary means of instruction.

The present system of education appears to have grown into shape about the middle of the last century: the Aristotelian philosophy had long before fallen to the ground, but time was necessarily required to mature the system of studies which has replaced it.

While it is necessary to fix a minimum for the encouragement of ordinary students, it is not so obviously requisite to fix a maximum for the mathematical acquirements of the highest wranglers. The maximum has, of course, gone on increasing in proportion as the previous education of students has been better, and books and modes of teaching at the University have improved. There is such a thing as an atmosphere of scientific emulation, which stimulates the brain and multiplies the efforts of the finer spirits who are subjected to its influence. If the reader will compare, in the volume of "Cambridge Problems," those proposed in 1801 with those of 1820; and, again, those of 1829 with the papers of the last two or three years, he will instantly see how great has been the progress of Cambridge teaching in this century. Dr. Peacock, indeed, is of opinion that this progress has been too great; that the questions set are far too difficult, and that "nothing short of the most peremptory orders, defining what shall be omitted, will prevent examinations from travelling over the whole range of mathematical and philosophical knowledge."

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* Observations on the Statutes of the University of Cambridge.

If the error has been committed for the last two or three years of proposing questions so difficult that even the best men cannot answer them, the mistake must be so glaring that it is not likely to be repeated; but it is possible to conceive that a mistake more injurious, because more defensible, might be committed, by setting many problems so hard that only two or three of the highest students could cope with them. Those immediately below the highest would thus lose the opportunity of ascertaining their relative proficiency in the most satisfactory manner, and would be deprived of the power of displaying their acquirements to the best judges of their merit. But, after all, we have rather put a case hypothetically, than drawn it from the records of fact; for though Dr. Peacock speaks of papers of problems of the most disheartening difficulty (p. 153, note) others have, no doubt, been set in the same examinations, of more approachable elevation; not to mention what is called book-work, *i. e.* theorems and examples to be found in the ordinary books.

Dr. Peacock, however, would wish to set a limit to the range of examination, partly in order to enable students to read for honours without "the stimulating aid of private tuition," and partly because he wants to cut off one term from the period of residence now required before the degree of B.A. can be taken.

In proportion as examinations have grown more difficult, private tuition in the University has been more extensively adopted. The majority of pupils find that they cannot keep up with the rapid march of the public lecture-room of their College without this subsidiary aid; and when the under-graduate is many months behind-hand, his private tutor enables him to continue his studies, and even to obtain a respectable degree. In the public lecture-room the teacher gives one hour to the whole class; but the pupil, unless his powers are of a very high order, finds that an hour daily is not more than his own doubts and difficulties require; and this he obtains from a private tutor. Hence, although the public lecturer gives a general view of the subject, the student is too happy to seek for an explanation of details from the patience of his private tutor.

It is clear that the wished-for object is attained, and that the pupil thus prepared cuts a far better figure, both in the lecture-room and in the senate-house, than if he had been left to struggle on unaided. Yet it is equally clear that he who contends with his difficulties alone, goes through a finer discipline of the mind than the selfindulgent student, who, at every hitch, refers to his living dictionary of difficulties. The former system of study is like the island of Ithaca, in the Odyssey, *τρηχεί, ἀλλ' ἀγαθη κουροτροφος**; the latter like the enchanted gardens of Armida—delightful, but unmanning. The student who has unravelled a hundred geometrical problems by his own unassisted toil, will be more pleased with his progress, and better prepared for the business of life, than if whole volumes of analysis had been softened down for him by the ever-ready good-humour of his teacher. All this is perfectly true; yet if the young mathematician desires to be a wrangler, this slow but sure plan is, in the majority of instances, quite out of the question. Dr. Peacock, indeed, proposes to cut the Gordian knot by utterly prohibiting private tutors after the first year of University residence; and would even disallow the reading parties which now commonly pass the long vacation in the country. Such laws, if enacted, would soon share the fate of the Elizabethan statutes. The Dean of Ely would allow private tutorship during the freshmen's year; but it would seem at least equally required during the subsequent ones: school recollections may help the young mathematician through Euclid, and the Elements of Algebra, but how is he to get on without a living commentary, when the public lecturer is advancing with giant strides through the abstruser branches of analysis, and their multiform applications? Dr. Peacock would render it more nearly possible, by diminishing the range of subjects; but what was left would inevitably be too much for the faint-hearted exertions of a large class. It is not every one who is marked out by nature to lead forlorn hopes. Instead of attempting to put down private tutors by force of law, we would diminish their numbers by the following scheme. It is well known that in the first annual College examination, many pupils show an extremely superficial knowledge of the subjects. Now instead of attempting to force such pupils, the following October, into the second year's lecture room, where, even with a private tutor's aid, their progress is almost none, their College instruction should consist of a repetition of the first year's subjects. A patient lecturer might instil much knowledge into such men, who would be driven to despairing idleness by the quick march of lectures calculated for the *élite* of their contemporaries.

So much for the maximum, and those who read up to this high and undefined standard. What is the minimum by which a B.A. degree can be obtained? Dr. Peacock enables us to answer this question. "The subjects of examination for the ordinary degree of B.A. in January, 1841 (the first year of its introduction), are portions of a Greek and Latin author*, the Acts of the Apostles, Paley's Moral Philosophy, the three first, and portions of the sixth, books of Euclid, arithmetic, and the most elementary parts of algebra, the doctrine of proportion, and some of the more important propositions (less than fifty in number) of statics and hydrostatics." According to the regulations which had been in force for about fifteen years previously, "the University required a *competent* knowledge of the first six books of the Iliad of Homer and of the Æneid of Virgil, Paley's Moral Philosophy and Evidences of Christianity, the four first books of Euclid, arithmetic, and the elements of algebra."

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* Rough, but good to bring up boys in.

* "For this year, these subjects are the 7th, 8th, 9th, and 10th books of the Iliad of Homer, and the Bellum Catilinarium of Sallust."

To persons unaccustomed to see pupils on a large scale, and who, therefore, in their attempted estimates, inevitably substitute picked for average performances, both the late and present requirements of the University will appear to err on the side of lenity. They may learn the contrary from the Dean of Ely. His experience has shewn him that a large proportion of candidates were plucked under the late regulations; and there is no doubt that at least an equal number will be rejected under the new. The inexperienced would say, "a (picked) schoolboy could do this;" the experienced know that to many a languid student of twenty-one the difficulty of such an examination seems insuperable. Nay, Dr. Peacock goes further, and says that there are many who possess considerable memory, or imagination, and who are good classical scholars, though incapable of comprehending the very elements of mathematical reasoning, whether in arithmetic, geometry, or algebra. To such men the present regulations are not merely a stumbling-block, but a brazen wall of exclusion. Yet it is precisely such men who would derive the greatest benefit from these severer studies; as the Dean himself acknowledges, and as Bacon has set forth with his usual felicity.

> "Nay, there is no stand or impediment in the wit, but may be wrought out by fit studies; like as diseases of the body may have appropriate exercise; bowling is good for the stone and reins, shooting for the lungs and breast, gentle walking for the stomach, riding for the head, and the like; so, if a man's wits be wandering, let him study the mathematics; for in demonstrations, if his wit be called away never so little, he must begin again[*]."

Dr. Peacock, however, naturally compassionates the case of a man who, though he excels in classic lore, cannot obtain even an ordinary degree, from his utter inapprehension of the relations of number and space; and he would favour such students by commuting all or part of their mathematical examination for a classical one of considerable range and severity. This, it must be confessed, is a doubtful point. For while, on the one hand, by the present system, such students are often cut off from fair opportunities of displaying their classic acquirements in a university examination; on the other hand, by the proposed reform, they would lose that wholesome medicine of the mind, by which the infirmities of their wit are, as Bacon says, "wrought out."

The little-go (or preparatory examination in the Lent term of the second year) is useful, and in our opinion unobjectionable: though when it first began, seventeen years ago, some persons thought that it would interfere with the preparation for the *great go*, or examination for degrees. This does not appear to have been the case, nor, had it happened to a slight extent, would this have been a good argument against the little-go. Even if a few of the best mathematicians found the interruption an embarrassment, the interests of the great body of undergraduates were furthered by this excellent innovation. The examination is always in one of the four gospels, a portion of a Greek and a Latin author, and Paley's Evidences of Christianity. This year the subjects are the Gospel of St. Mark, the first book of Herodotus, and Cicero de Senectute.

Dr. Peacock has some observations on the mode of examination in the Classical Tripos, and others on the still weightier subject of professional education, but we have no space left to discuss them on the present occasion.

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[*] Essays. Of Studies.

ROYAL MEDICAL & CHIRURGICAL SOCIETY.

Tuesday, March 9, 1841.

DR. WILLIAMS, PRESIDENT, IN THE CHAIR.

DR. CLENDINNING moved that the thanks of the society should be returned to their late President, Sir B. C. Brodie, for his numerous services, and his admirable conduct while he occupied the chair. The motion was seconded by Mr. Arnott, and carried unanimously.

Mr. Partridge moved, and Mr. Davis seconded, the thanks of the society to Mr. Arnott, their late Treasurer. The motion was carried unanimously, and Mr. Arnott returned thanks, congratulating the society on the improved state of their finances. Six years ago he received a balance of five pounds from his predecessor; he had lately transferred to his successor scarcely less than six hundred.

Dr. Webster moved the thanks of the society to their late Secretary, Dr. Lee. Mr. Davis seconded the motion, which was carried unanimously, and Dr. Lee returned thanks.

A Case of Slow Pulse, with Fainting Fits, which first came on two years after an injury of the neck from a fall, and proved fatal five years and three months after the accident. By T. H. HOLBERTON, of Hampton, Surgeon Extraordinary to the Queen Dowager.

The subject of this case was a gentleman, 64 years of age, who received an obscure injury to the neck from a fall from his horse, in December 1834. From this injury he slowly recovered, and at the end of a year complained only of some difficulty in moving his head. Nothing further was remarked respecting this gentleman until January 1837, when he had a fainting fit, and Mr. Jackson, of Stamford, then observed for the first time that his pulse beat only 20 in a minute. From this time he had similar attacks, at irregular intervals, and from various causes, and in the spring of the same year, from excitement at a horse-race and long fasting; and another in the following June, from a somewhat similar cause. In the latter instance, his pulse was 25 in a minute. When the author first saw him, in March 1837, his ordinary pulse was 33; but it was easily altered. Mental excitement usually increased it; and, in general, this was followed by a corresponding slowness of the pulse, and often by a fainting fit. The general characters of the pulse, when the patient felt well, were firmness, fulness, and freedom; generally it was regular, but sometimes intermittent. An overloaded state of the stomach was an occasional cause of these attacks; and in 1838, when the patient suffered from "a severe and alarming succession of fits," the pulse fell to 12, 10, 9, 8, and, at three or four different times, was counted as low as 7½ in a minute. One of these attacks ended in the death of the patient, in April 1840.

The examination of the body was made by Mr. Liston, from whose report the following is extracted:—"The medulla oblongata was small in size, and extremely firm in consistence; the foramen magnum was altered in shape, the antero-posterior diameter being much diminished; the superior part of the odontoid process of the axis appeared to have been pushed back, and somewhat raised above its usual situation; the antero-posterior diameter was so much narrowed, that it would not admit of the little finger; the dura mater and ligament covering the posterior part of the body of the axis were much thickened; the atlas was in its usual situation, but the articular cavities were firmly ossified to the condyles of the occipital bone, and permitted no motion whatever between the atlas and skull." The patient never had paralysis, nor alkalescent urine; neither did he suffer from pain in the neck after the first few weeks from the accident.

The discussion which followed the reading of the paper was rather diffuse in its objects; we therefore give an orderly analysis of the principal parts of it, in lieu of a regular report.

Mr. Cæsar Hawkins questioned the existence of any connection between the accident and the slowness of the pulse. Nothing was accurately known of the condition of the patient's pulse previous to the accident: the patient had been a healthy man, and not examined by any medical attendant; nor was there any indication of an affection of the spinal cord till two years had elapsed from the time of the injury: in the interval the patient had been well, and had had the perfect use of his limbs, without any indication whatever of paralysis. It was not probable either that the effects of such an injury as was supposed to have been received should be delayed for two years; nor that, had it been delayed, its paralyzing influence should be limited to a single organ—the heart. Besides, it appeared that the fits to which the patient was subject were always brought on by some disordered condition of the stomach, such as from overeating, or accidental distension of it; just as was ordinarily the case with those who suffered from either functional or organic disease of the heart without any coincident disease of the spinal cord. From these facts he could not help regarding the case as only one of those which occur not unfrequently, in which the pulse is peculiarly slow; and though it might be difficult, as it is in many of them, to point out the cause of the slowness, he could not see any reason to believe that it was connected with the injury, if any of real importance existed, of the spinal cord.

Mr. Arnott took the same view of the case. There was no evidence that the patient had not always had a slow pulse; and numerous cases were recorded of pulses as low, or nearly as low, as in this, without the existence of any disease of the spinal cord. Mr. Mayo had once read a paper at the College of Physicians, in which he had collected a great number of cases of the kind, one of which he (Mr. A.) had communicated to him; but in no one of these was the slowness of pulse at all connected with injury or disease of the spinal cord. On the other hand, cases were on record in which, with injury of the cord, such as was here supposed to have taken place, the pulse remained unaltered. All the circumstances of the patient's history concurred to prove that the injury and the slowness of pulse were only accidental coincidences, but had no necessary connection with each other.

Other members believed that the slowness of pulse must have been the consequence of the injury; and, for its explanation, Mr. Gregory Smith asked whether the vertebral arteries had been examined, and Mr. Bransby Cooper whether they or the nervus vagus high up in the neck and in the skull had been seen. Mr. Liston said it was so long since he made the examination, that he really could not remember what the condition of these parts was. Mr. Bransby Cooper thought the narrowing of the upper part of the vertebral canal was such that the vertebral arteries must have been compressed; and if this were the case, the symptoms admitted at once of explanation from the disturbance of the cerebral circulation, to which such an obstacle to the passage of its blood was always known to give rise.

Dr. C. J. B. Williams also, believing that there was a connection of consequence between the injury and the slowness of the pulse, referred to cases in which the same symptom followed analogous conditions of the cerebral and spinal circulation. The ordinary case of fainting was such an one; the slowness of the pulse in apoplexy from the compression of the brain was also a similar phenomenon; and more than these, the experiments of Legallois rendered the connection of injury of the cord with disordered action of the heart probable, for he had constantly found such disorder, either a reduction or an irregularity of the heart's action, follow destruction of the spinal cord. That extended paralysis did not ensue from the compression of the cord, was explicable, he thought, by the circumstance of the compression being gradually made. It was not the immediate result of the injury of the vertebral column, but rather of thickening of the ligaments; and it therefore resembled those cases, of which many were on record, in which tumors growing within the canal, and gradually compressing the medulla spinalis, did not produce paralysis.

Dr. Addison related a case very closely resembling that recorded in the paper. It was that of a gentleman whom he had lately, but only once, seen, who had always had (as his medical attendants had often told him,) a remarkably slow pulse. It was only of late, however, that this had been accompanied by any important symptoms; but now he was subject to frequent fits, of a kind something like epilepsy, but dependent on the singular action of the heart. The way in which these fits came on was as follows:—the heart ordinarily beats about 24 or 26 times in a minute, every pulsation being very strong and full. But on the approach of a fit, the pulsations become gradually more and more frequent, till they reach about the natural standard of between 60 and 70 in a minute; and then, after a time, there suddenly ensues a dead stop of the pulse, and immediately the fit comes on. It consists of a great agitation of the limbs, with a staring openness of the eyes, and insensibility; and always lasts till the pulse again begins to be perceptible. This is often a considerable time; he could not say exactly how long, but certainly very long for a man to be without any pulse. As the fit passes off, the heart begins to act with its ordinary slow rhythm, and thus it continues till the approach of another fit, when it again becomes accelerated, then stops; and then again, as the patient recovers, resumes its usual pace. It was remarkable, that, so long as the pulse remained between 20 and 30, every one of the violent contractions of the heart was accompanied by a very loud grating *bruit*, so loud and so diffused that he could not say whether it proceeded from the aortic or the mitral valves; but as soon as the pulse became more frequent, the bruit at once ceased, and did not return till the pulse again became slow, and the contractions of the heart few but very forcible. He had examined the state of the respiration in this patient, but it was not materially affected. Since he had seen him, his regular medical attendant had informed him that he was in nearly the same state; that the fits had, however, been rendered less frequent by the use of stimulants; but that, on one occasion, the pulse had beat only 17 times in a minute, and that, at this time, the pulsations and the respirations had exactly corresponded. He had detected in this case a source of fallacy, which he thought it probable had existed in many of those recorded as examples of slow pulses,—namely, that though the pulse at the wrist was thus infrequent, the contractions of the heart were more numerous; for he had found, with the stethoscope, that between each of the violent contractions of the heart there occurred one very gentle contraction, too weak to propagate any impulse to the artery at the wrist.

Mr. Perry thought this source of fallacy might have been overlooked in the case that had been read. It was barely possible that a man should live with a heart beating only seven times in a minute; but it was certain that a circulation was often maintained, though the pulse at the wrist could not be felt; as, for example, in cases of cholera.

Dr. Burne, having asked whether the condition of the great arteries in this case had been examined, and being answered in the negative, expressed his suspicion that they might have been the main cause of the slowness of the pulse. He thought too much stress were laid on what was called diseases of the heart. He had met with many cases in which irregularity of the pulse had existed to a great extent, and in which no cause for it was found but extensive disease of the arteries; the heart itself being, except for the hypertrophy which was induced in it by the necessity for excessive exertion, perfectly healthy. He thought it probable that, in Dr. Addison's case, something of this kind existed. In these cases, the circulation losing the assistance which it ordinarily receives from the arteries, the whole burden of carrying it on is thrown upon the heart, which for a time, growing larger and stronger, is sufficient for the purpose. But after a time, the blood accumulating more and more, the heart can no longer propel it with the necessary force, and then it becomes irregular in its action; and at last, its efforts growing less and less availing, the blood ceases to be moved, and the patient dies.

Dr. Addison expressed his surprise at the opinion of irregularity of the pulse being ever dependent on disease of the arteries alone; he had never met with a case in which it had so occurred.

Dr. James Johnson also said that he had never yet seen a case of irregular action of the pulse without disease of the heart, and altogether doubted the possibility of such an occurrence.

Dr. C. J. B. Williams concurred in the same opinion. He could not call to mind a single case in which the pulse had been irregular from mere disease of the large arteries, the heart and its valves being healthy.

Dr. Burne, however, felt persuaded, that now that the attention of gentlemen was drawn to such cases, they would not fail to find his opinion corroborated. He did not regard hypertrophy as a disease; it was only the same thing occurring in the heart as takes place in any muscle that is much exerted,—in the muscles of a smith's arm, for example: it was the result of the power which muscles seem naturally to possess of enlarging themselves, so that they may be adapted, to a certain extent, to any work which they are called on to perform.

COLLEGE OF PHYSICIANS.

To the Editor of the Medical Gazette.

Sir,

After having given the report of the Committee appointed by the College of Physicians on the subject of medical reform a perusal, I was gratified with the first resolution which was proposed, namely, that it is expedient that all physicians now practising throughout England and Wales, with a diploma of M.D., obtained from any British University, and who have attained the age of twenty-six years, should be entitled to admission into the order of licentiates of the College, without any examination, but upon the payment of fees hereafter to be determined.

There are two or three things, however, connected with this primary and very *prudential* resolution, which I think it would be only right and proper to attend to, namely, that no physician who acts as a general practitioner, (that is, one who acts at the same time as a surgeon and apothecary), should be allowed to be admitted to the privilege which it holds out, unless he forthwith gives up acting as a general practitioner. And the next thing is, that the fee of admission be made as *low* as possible, as there are but few physicians who could *conveniently* afford to pay one of much amount. And perhaps it would not be a bad principle by which to regulate the scale of the amount of fees, by the length of time each physician has been in practice; say for periods of five, ten, fifteen, and twenty years and upwards; and that the fee for the last period should be merely nominal, as any benefit accruing to them would not be so durable, and, consequently, not of equal importance. And perhaps physicians of seven or ten years' appointment, at any public hospital, or dispensary, might be allowed to be licentiates at the lowest fee of admission.

And I think it would be desirable that a registry-board should be established at the county town in each county in England and Wales, in order that every physician, in actual practice, should be required to be registered, in addition to the general board of registration at the College of Physicians.

MEDICUS.

March 9, 1841.

MEDICAL REFORM.

PETITION FROM THE COLL. OF PHYSICIANS.

To the Honourable the Commons of the United Kingdom of Great Britain and Ireland, in Parliament assembled.

The humble Petition of the President and College or Commonalty of the Faculty of Physic in London, under their common seal.

SHEWETH,—That a Bill is now pending in your Honourable House, entitled "A Bill for the better government of the Medical Profession in Great Britain and Ireland."

That the Royal College of Physicians of London was incorporated by Royal Charter of King Henry the Eighth, which Charter was confirmed and recognized by several Acts of Parliament; that it has existed and exercised its jurisdiction through many changes in society during 300 years, and has included among its members many of the most learned men which this country has produced.

That under its jurisdiction and superintendence the profession of a Physician has risen to and maintained a rank in society at least equal to that which it enjoys in any civilized country in Europe.

That the proposed Bill would entirely destroy the jurisdiction of your Petitioners, and would place in the hands of a Senate composed of nine delegates, all of whom might be Surgeons or Apothecaries, most absolute power to regulate exclusively the education of Candidates for the Diploma. And your Petitioners are of opinion that Physicians are and ever must be the best judges of the qualifications of Physicians, and that consequently such a regulation would in effect be ultimately most injurious to the best interests of society.

That it is further proposed to establish one qualification, to be determined by examination, for all persons desirous of practising the medical profession, without reference to the particular branch of the profession they may intend to follow; and it appears to your Petitioners that if the examination to be instituted be one which demands the present maximum of preliminary and medical education, it will be above the means of attainment by a very large proportion of students; and that if such examination be of a lower grade, it will be followed by a deterioration of the scientific and literary character of the profession, and the public will necessarily suffer.

That it is further proposed, that all powers, privileges, appointments, and acts, which have been conferred on, or held or performed by, Physicians, shall hereafter be conferred on, held, performed, and enjoyed by the licensed practitioners according to the said Bill, and by such persons only; and it appears to your Petitioners, that by conferring equal rank and privileges on all, every incentive to honourable ambition is removed, and no inducement is held out to the student to undertake an expensive general education, and a prolonged course of medical study, by which means alone the literature and science of the profession can be upheld in their present honourable position.

That the power of recovering fees for medical visits proposed to be given by the said Bill appears to your Petitioners objectionable as applying to Physicians, and your Petitioners consider that it would not be for the credit of any in their body, inasmuch as such a power would place them on a less respectable footing in society than that which they at present hold.

That should a Council (as is proposed) be elected by the votes of the profession at large, it would produce a series of jealousies, altercations, and dissensions, most injurious to the character of medical men; nor would such a measure insure the services of the most distinguished, inasmuch as the necessary canvass would be contrary to the habits and duties of those extensively engaged in the practical labours of the profession.

That your Petitioners having carefully considered the alleged grievances set forth in the various petitions to your Honourable House for Medical Reform, and having communicated with the Universities, the other Medical Corporations, and with Delegates from several other bodies whose interests are involved in the proposed measure, are now maturing a general plan for the better regulation of the medical profession, and they have reason to believe that such plan will give satisfaction to the members of the profession, and be conducive to the better protection of the public. And your Petitioners hope shortly to be enabled to submit the same to the consideration of the Legislature.

Your Petitioners therefore must humbly pray that the said Bill may not pass into a law, and that your Petitioners may be heard by their Counsel, Agents, and Witnesses, against the same.

And your Petitioners will ever pray, &c.

MEDICAL REFORM BILL.

We subjoin a short account of what took place in the House of Commons on Wednesday, on the subject of medical reform, which strongly illustrates the importance attached to the measure by her Majesty's ministers, as well as by the House of Commons at large. A Bill is brought forward by Mr. Hawes, and supported by Mr. Wakley, having for its chief object the establishment of the "one Faculty" system. Not a single member of the administration honoured them with his countenance; and fewer than forty members of any kind being present, the measure fell to the ground as a matter of course:—

On the question that the Medical Profession Bill (No. 2) be read a second time, several members rose to present petitions, of which twenty-four were against the measure, and seven in favour of it.

It was then proposed by Sir T. Trowbridge that the measure should be delayed; but

Mr. Wakley "hoped that his honourable friend, the member for Lambeth, would proceed with the measure: the objection, as he understood, was not against the principle of the measure, but against its details; and they might be arranged in committee. If they now agreed to the principle of the bill, the committee might be postposed to a distant day."

Mr. Hawes accordingly moved the second reading of the bill, which Mr. Ewart seconded.

Mr. Darley rose to speak against it, when an honourable member moved that the house be counted; and as there were present only thirty-three members, the house was adjourned.

ROYAL COLLEGE OF SURGEONS.

LIST OF GENTLEMEN ADMITTED MEMBERS.

Friday, March 12, 1841.

W. Simpson.—J. R. Withecombe.—W. J. Gruggen.—A. J. Marsh.—H. Coward.—R. W. O'Donovan.—S. Secker.—A. Anderson.—E. A. Jenkin.—H. L. Crowther.—J. Hooper.

APOTHECARIES' HALL.

LIST OF GENTLEMEN WHO HAVE RECEIVED CERTIFICATES.

Thursday, March 4, 1841.

J. Denny, Ipswich.—E. F. Leyson, Neath South Wales.—J. P. W. Sydenham, Oxford.—W. R. Baxter.—J. A. Clarke, Bedford.—C. B. Craske, India.

Thursday, March 11, 1841.

William Charles Calthrop, Boston, Lincolnshire.—Richard Rickman Shillitoe, Hertford.—William John Blake French, Wilton, Wiltshire.—Richard Quain, Mallow, Ireland.

A TABLE OF MORTALITY FOR THE METROPOLIS,

Shewing the Number of Deaths from all Causes registered in the Week, ending Saturday, the 6th March 1841.

Small Pox	24
Measles	16
Scarlatina	8
Hooping Cough	63
Croup	3
Thrush	2
Diarrhœa	7
Dysentery	0
Cholera	0
Influenza	16
Typhus	34
Erysipelas	6
Syphilis	0
Hydrophobia	0
Diseases of the Brain, Nerves, and Senses	180
Diseases of the Lungs, and other Organs of Respiration	336
Diseases of the Heart and Blood-vessels	19
Diseases of the Stomach, Liver, and other Organs of Digestion	73
Diseases of the Kidneys, &c.	4
Childbed	11
Ovarian Dropsy	0
Diseases of Uterus, &c.	5
Rheumatism	4
Diseases of Joints, &c.	7
Ulcer	0
Fistula	0
Diseases of Skin, &c.	0
Diseases of Uncertain Seat	125
Old Age or Natural Decay	106
Deaths by Violence, Privation, or Intemperance	25
Causes not specified	5
Deaths from all Causes	1079

METEOROLOGICAL JOURNAL.

Kept at Edmonton, *Latitude* 51° 37 32″ *N. Longitude* 0° 3′ 51″ *W. of Greenwich.*

March.	Thermometer.		Barometer.	
Wednesday 10	from 30 to	57	30·31 to	30·36
Thursday . 11	28	57	30·36	30·34
Friday . . 12	28	58	30·28	30·24
Saturday . 13	27	57	30·23	30·33
Sunday . . 14	33	53	30·28	30·18
Monday . . 15	30	58	30·09	30 02
Tuesday . 16	30	59	29·87	29·72

Wind S.W. on the 10th; South on the 11th; S.W. on the 12th; N.E on the 13th; East on the 14th; S.W. on the 15th; S.E and South on the 16th.

On the 10th, morning overcast, afternoon cloudy, sunshine at times, evening hazy; the 11th, and two following days, clear; the 14th, afternoon and evening clear, otherwise cloudy; the 15th, morning foggy, otherwise clear; the 16th generally clear.

Charles Henry Adams.

Wilson & Ogilvy, 57, Skinner Street, London.

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